ECONOMIC AND POLICY OUTLOOK

2024+

Economic and Policy Outlook (2024)

ISBN: 0 85801 361 4

CEDA's objective in publishing this report is to encourage constructive debate and discussion on matters of national economic importance. Persons who rely upon the material published do so at their own risk.

This paper uses unit record data from Household, Income and Labour Dynamics in Australia Survey [HILDA] conducted by the Australian Government Department of Social Services (DSS). The findings and views reported in this paper, however, are those of the authors and should not be attributed to the Australian Government, DSS, or any of DSS' contractors or partners.
DOI: 10.26193/R4IN30

ABOUT THIS PUBLICATION

CEDA's **Economic and Policy Outlook (EPO) 2024** looks at the key issues likely to shape economic and policy outcomes in the year ahead. It provides valuable analysis to help policymakers and business respond to critical issues.

EPO is Australia's premier publication and series of events held in capital cities focusing on the Australian economy and policy for the year ahead.

Running for more than 40 years, it brings together political, economic and business leaders and advises CEDA members on the environment they will be operating in over the next 12 months.

The release of EPO marks the start of CEDA's yearly program of events and research.

committee for economic development of australia

CEDA – the Committee for Economic Development of Australia

Level 3, 271 Spring Street,
Melbourne 3000 Australia

Telephone: +61 1800 161 236

Email: info@ceda.com.au

Web: ceda.com.au

About CEDA

CEDA is Australia's leading member-driven think tank. Our purpose is to achieve sustainable long-term prosperity for all Australians.

Our trusted independence, and a deep and broad membership base that extends across all sectors, states and territories, enables us to bring diverse perspectives and insights to guide and advance policy debate and development in the national interest.

We aim to influence future economic, social and environmental outcomes by:

- Promoting public discussion of the challenges and opportunities facing Australia;
- Enabling members to shape future outcomes through policy and their own actions;
- Partnering and collaborating to tackle emerging opportunities and entrenched challenges; and
- Advocating for policy change based on our independent research insights.

Our work is overseen by our independent Board of Directors and our research is guided and approved by an independent Research and Policy Committee whose members are leading economists, researchers and policy experts.

CONTENTS

ECONOMIC OUTLOOK 2024: SETTING AUSTRALIA UP FOR LONG-TERM SUCCESS

Cassandra Winzar
Chief Economist, CEDA

Cassandra Winzar is the Chief Economist at CEDA. Prior to joining CEDA she was Principal Economist at the WA Department of Communities (Housing Authority) where she focused on WA economic conditions and housing related research, including running the state government's Housing Industry Forecasting Group. Cassandra has also held roles as the WA-based Economist for the Reserve Bank of Australia and in Transfer Pricing at EY.

2023 saw the Federal Government undertake consultation, discussion and inquiries on a broad range of policy issues, including the employment white paper, the migration strategy and the aged-care taskforce amongst many others.

This year, after more than a year of discussion and design, the focus must be on getting things done. Some areas of policy reform look promising, such as the migration strategy released late last year and the stronger agenda on disability and care-economy reform.

Others are underwhelming – little has yet to come from the employment white paper, and the Housing Accord has had no noticeable impact as housing affordability worsens. We are also still on the look-out for key strategic policy pieces such as the clean-energy industry policy and a full response to the US Inflation Reduction Act in this year's Federal Budget.

This year, both business and the community are looking for action from the Government. Consultation is crucial for good policy development, but the speed and breadth of the process so far has left much to be desired, with quantity seemingly prioritised over quality.

Future consultation needs to be of higher quality, on a more targeted range of issues, with clear line of sight to impact and implementation. The burden on business from policy and regulatory changes, and the impact this has on productivity and innovation, must be considered as part of any reform.

Meanwhile, the global economic outlook remains uncertain, and there will be plenty to keep economists and policymakers busy in 2024.

Domestically, the immediate challenges include inflation and cost-of-living concerns and relatively high interest rates. We will feel the impact of ongoing conflicts in Ukraine and the Middle East. But when responding to these, we must also put the building blocks in place for the longer-term headwinds coming our way.

We can't predict the next big economic shock, nor when it will come. We need to aim for a resilient, innovative and productive economy that can weather what is thrown at it. We can manage these challenges if we are decisive, proactive and prepared to respond when shocks appear.

"We need to aim for a resilient, innovative and productive economy that can weather what is thrown at it.

Short-term challenges

Slow growth ahead

Despite concerns about the risk of a hard landing, the Australian economy made it through 2023 in fairly good shape, helped by a resilient labour market, buoyant business conditions and strong commodity prices. Risks of a recession this year are low, but that doesn't mean things will be easy.

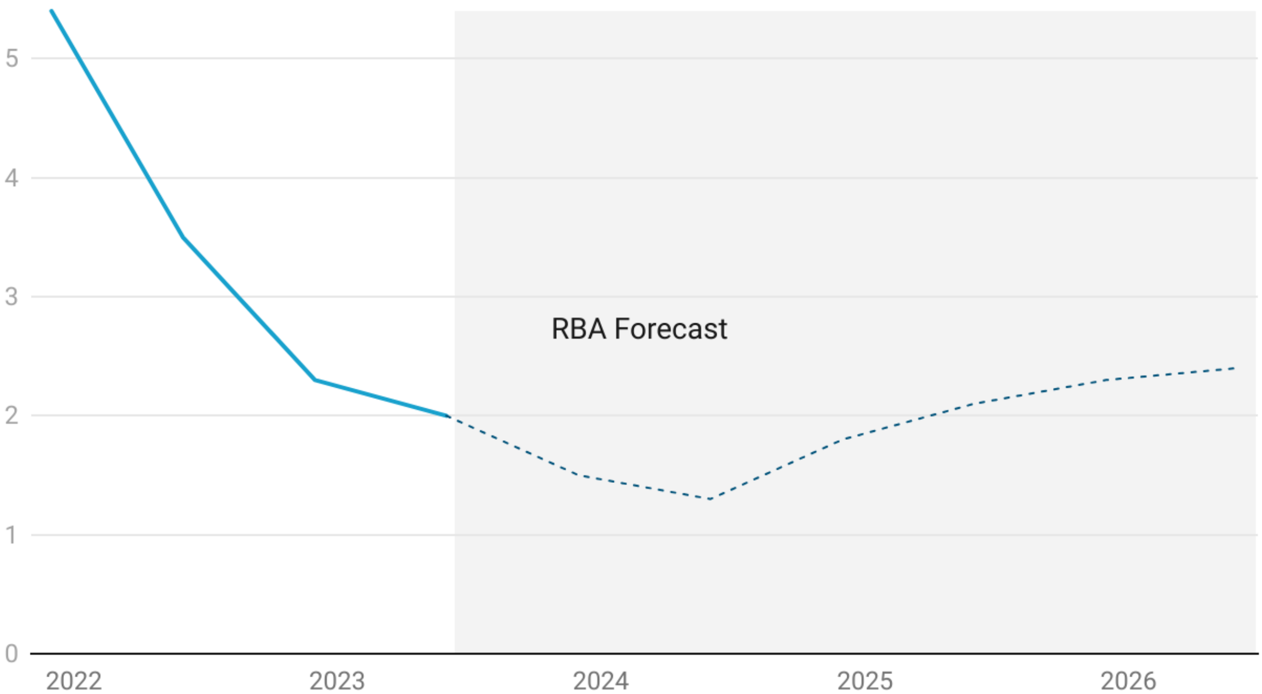
The cumulative impacts of interest-rate rises are starting to bite, with softening consumer spending and more gloomy consumer confidence. Firms are still adapting to higher interest rates, which is likely to mean increased volatility and uncertainty in business conditions and lower business sentiment.

Globally, growth is expected to be soft. Of particular concern is weakening economic activity in China. Ongoing geopolitical risks in Ukraine, the Middle East and China are adding to the uncertainty, compounded by the looming US election.

Extreme weather events, both at home and abroad, are already in the headlines in 2024 and are a constant reminder that climate resilience and the energy transition remain policy priorities and are likely to have an impact on economic growth for some time.

FIGURE 1

GDP growth expected to be soft



Source: Australian Bureau of Statistics and Reserve Bank of Australia • Created with Datawrapper

> The Government must ensure its policies and spending decisions work with monetary policy, not against it, to avoid stoking inflation.

Inflation and cost-of-living continue to bite

Inflation is moving in the right direction but is still too high. It is likely to remain the focus of economic policy and public debate throughout 2024. Globally, inflation is clearly receding. This will assist the Australian outlook. However, domestic inflation is increasingly homegrown and driven by demand for services, rather than imported through goods. This may prove more difficult to contain, and will make it harder to reset the inflation expectations of both consumers and businesses.

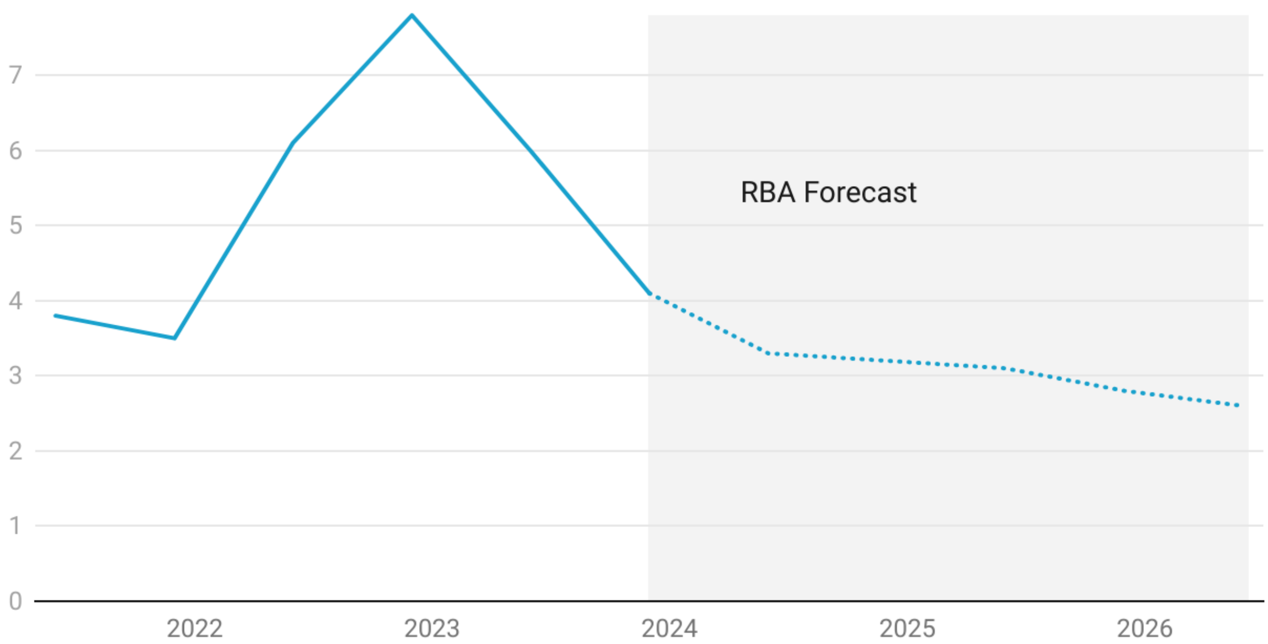
Cost-of-living pressures worsened over 2023 as rising prices and interest rates hit households hard. Strong labour markets have softened the blow somewhat, but many households have had a material decline in their living standards. These pressures are not likely to abate anytime soon, and are already shaping the policy landscape this year. The debate is only likely to heat up as we head towards the Federal Budget.

While we may not see more interest rate rises in 2024, rate cuts are not yet on the agenda – unless inflation falls quicker than expected. Anything that entrenches inflation for longer will lead to worse outcomes for the economy and the broader community. The Government must ensure its policies and spending decisions work with monetary policy, not against it, to avoid stoking inflation.

FIGURE 2

Inflation will remain elevated through 2024

Consumer Price Index (%)



Source: Australian Bureau of Statistics and Reserve Bank of Australia • Created with Datawrapper

Unemployment is likely to rise

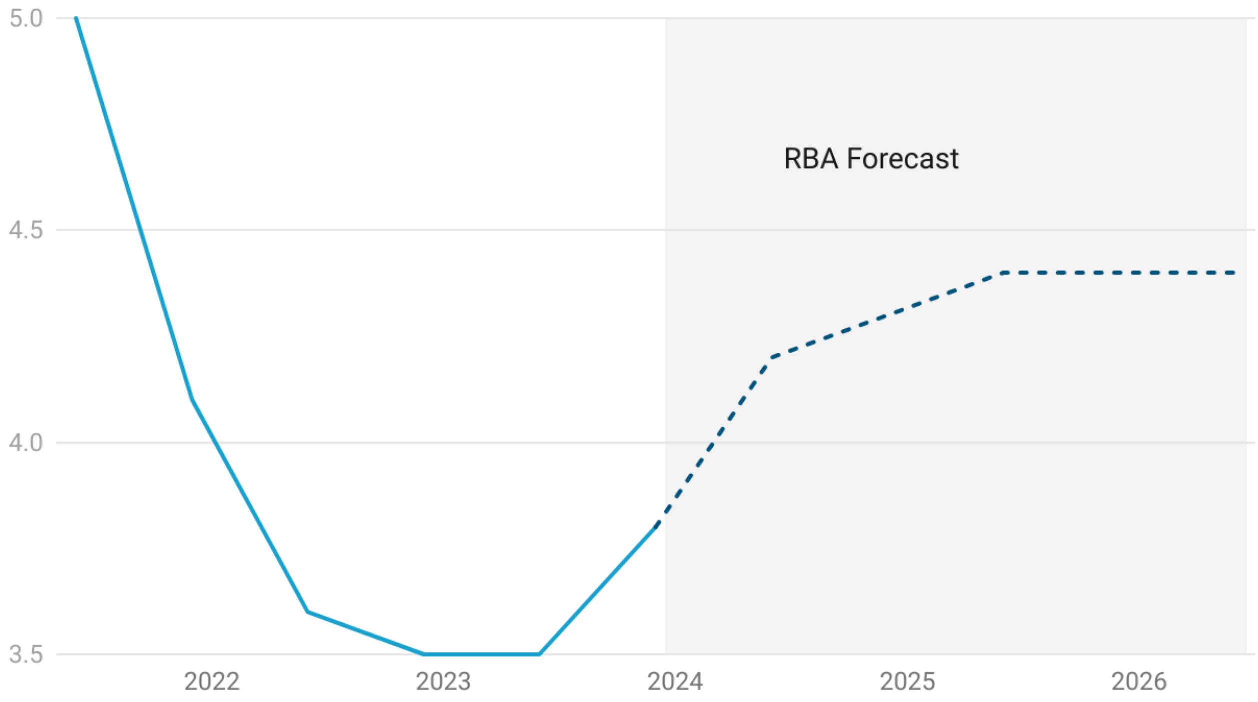
One of the positive outcomes of 2023 was the resilience of our labour markets – with low unemployment rates, shrinking underemployment and increases in participation. The unemployment rate stayed near historic lows for longer than expected, remaining under four per cent throughout the year.

We are unlikely to be able to get inflation sustainably under control without higher unemployment, a trade-off the RBA has been increasingly clear about. Unemployment has started to creep up and advertised job vacancies have started to fall, although they remain at historically high levels. This suggests further increases in unemployment are likely, particularly as higher interest rates continue to weaken demand.

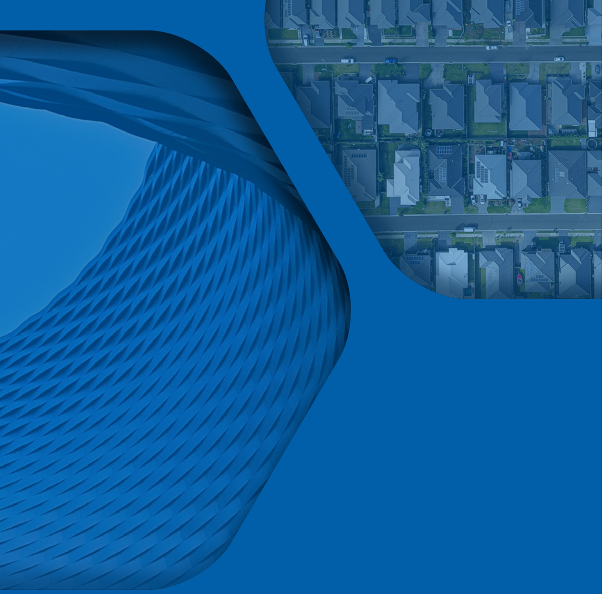
In Chapter 1, CEDA Economist Liam Dillon outlines the evolution that will need to take place in the labour market to meet the challenges and opportunities ahead for the Australian economy, focusing on skills shortages, artificial intelligence (AI) and education. The employment white paper, *Working Future*, has set clear objectives to address the changing nature of the economy and demographic shifts. But we have yet to see much clear policy reform or action emerge from the process.

FIGURE 3

Unemployment is drifting higher



Source: Australian Bureau of Statistics and Reserve Bank of Australia • Created with Datawrapper



This year, we must take concerted action to address persistent workforce shortages in the care economy, develop the skills to meet our goals under the transition to net-zero, and improve the productivity of the workforce to meet our short-term needs and set us up for the longer term. Progressing the Federal Government's migration strategy, one of the stronger pieces of policy work to come out of 2023, will be a key lever to achieve these goals.

The Federal Government and RBA must be on the same page

2023 proved a challenging year for coordination on economic policy, with monetary and fiscal policy at times appearing to be heading in opposite directions, particularly on inflation and cost-of-living relief. The Federal Government has also renewed its commitment to full employment at the same time as the RBA has suggested that an increase in unemployment is needed to bring inflation sustainably under control. These tradeoffs need to be openly discussed and there should be a clear narrative and direction around goals and timing.

The Government needs to look at its role in managing inflation and not leave the heavy lifting solely to the RBA. Inflation and higher interest rates are increasingly hitting different parts of the community very differently. Younger, lower income households and newer entrants to the housing market are feeling the full impact, while older and more established homeowners continue to spend, benefiting from paid-off mortgages and increased interest rates on savings.

The RBA has a blunt lever in interest rates, but the Government has more options. Reviewing infrastructure spending, as it did in late 2023, is a good start, but the inflationary impacts of any decisions – including the planned changes to the stage three tax cuts – must be a key consideration of the Federal Budget. The Federal Government and the RBA must be on the same page to ensure a soft landing.

Housing shortages will continue and pressure governments to act

Governments must take tangible steps to fix the acute housing shortages throughout much of Australia in 2024. The problems in the housing market have been building for some time, and cannot be resolved overnight, but the pace of reform must be ramped up. We risk significant intergenerational inequality and further entrenching disadvantage in some parts of the community if we cannot provide affordable and adequate housing across the country.

> **"**
> **The Government needs to look at its role in managing inflation and not leave the heavy lifting solely to the RBA.**

> We need to increase building activity over the longer term and address barriers to supply, most of which were well identified in the Housing Accord but have seen little action.

The announcement of the Housing Accord in late 2022 showed promise, but progress has been far too slow amid continued housing shortages, struggles in the construction sector and a dearth of progress on planning and zoning reforms.

Housing supply has not kept up with demand and housing construction activity is not at the level it needs to be. The current low rate of building approvals means activity will remain slow this year and will not materially change the housing shortages in the short term, although price growth may soften as the impact of interest rate rises reduces borrowing capacity.

We need to increase building activity over the longer term and address barriers to supply, most of which were well identified in the Housing Accord but have seen little action. In the short term, we can also look at how to better use existing housing stock, as small households are increasingly living in larger houses.

We must look more creatively at all immediate-term options to ease the crisis, such as encouraging people to share houses, rent out spare bedrooms or incentivising downsizing. Innovative approaches to building more homes faster, such as modular construction or repurposing buildings, must also be considered.

Setting Australia up for long-term success

Looking ahead, CEDA has been consulting with members and stakeholders on the biggest issues the nation must tackle to ensure a prosperous economy for all Australians. Three areas clearly require more attention: improving our productivity performance, particularly through innovation; ramping up the energy transition and decarbonisation agenda; and ensuring more Australians benefit from economic development. Crucial to success in these areas is a skilled, flexible and innovative workforce.

Clearly, many of these issues are on members' minds. This is in part because they received little attention from previous governments, whose reform agendas were tepid at best. But without decisive action, we will not be able to maintain our long run of economic success. The scale and scope of the challenges Australia is facing require focused effort to manage threats, take advantage of opportunities and sustain the living standards Australians have rightfully come to expect. Too much public policy remains focused on short-term issues and reacting to the day-to-day. We need to keep the focus on long-term outcomes to provide strong and sustainable growth to all Australians.

> Productivity cannot be solved through a single policy change. It must be considered across all areas, including: increasing the up-take of innovation and technology; addressing tax reform, improving management capa-bility; and revising migration settings, amongst others.

More action needed on productivity

One of the big stories of 2023 was the declining rate of productivity in Australia. This is unlikely to turn around quickly this year, but we must start making progress on reforms that will shift the trajectory.

With an ageing population and a shrinking working-age cohort, looking at ways to increase the productivity of our labour force will be key to our capacity to deliver the services Australians expect. We must make the most of the workers that we do have and look at ways to further build productive capacity across our economy.

In Chapter 2, CEDA Senior Economist Melissa Wilson and Economist James Brooks explore one piece of the workforce productivity puzzle – the role of working from home. Remote work in some form is clearly here to stay, but there will be ongoing debate about how to find the right balance between the wants of employers and employees. Crucial to getting the most out of the workforce will be good management and ongoing trial and testing of approaches. Unlocking participation and productivity gains from groups with previously limited access to the workforce could be a key benefit of working from home. Finding the right mix could bring increased productivity and workforce participation as well as greater diversity.

Productivity cannot be solved through a single policy change. It must be considered across all areas, including: increasing the uptake of innovation and technology; addressing tax reform, improving management capability; and revising migration settings, amongst others.

This year, every single policy decision should be reviewed in the context of the likely impact on, or risk to, productivity and this should be a core feature of the next Federal Budget. We won't see an immediate payoff, but not acting now means accepting a sustained lower rate of productivity growth and with it, lower growth in living standards. This is not an acceptable outcome for business or the community.

The energy transition needs to ramp up

To get anywhere near close to meeting our net-zero targets, energy-transition policy must accelerate at all levels of government. In Chapter 3, CEDA Senior Economist Andrew Barker warns we must remove barriers to the transition and the development of clean-energy exports. We need long-term, sustainable policy signals to underpin investor certainty in an area that has for too long been denied them.


This is a global challenge. Many countries are making the same transition. That means competition for materials, skilled workers and expertise will get tougher. The Federal Government delayed its response to the US Inflation Reduction Act due to concerns about a lack of skilled workers and slow environmental approvals – this will be a key piece of policy to look out for in 2024. But while supportive policy will be necessary to get Australia on track to meet its decarbonisation goals, there are potentially big costs from doing this the wrong way. Regardless of the measures chosen, governments will need to take a more active role in guiding the transition in the absence of a broad-based emissions price.

The transition will be bumpy even under the best possible scenarios, and it will not impact all Australians equally. Proper consultation with affected communities and environmental experts is critical, and must occur early enough to enable plans to change where substantive issues are uncovered.

Increasing social and economic participation

For any economic reform to be successful the community must be on board. It must feel confident that the benefits of economic growth will be widely shared for governments to be able to enact reform and encourage a dynamic and competitive business sector.

More Australians need to feel they are benefiting from economic growth, whether through improved quality of and access to human services, increased participation in employment and social and economic activity, or access to opportunities for themselves, their families and communities.

As highlighted earlier, urgently tackling housing shortages will be crucial to address growing concerns about intergenerational inequality and wealth distribution and allow more Australians to feel part of our economic future.

> **Urgently tackling housing shortages will be crucial to address growing concerns about intergenerational inequality and wealth distribution and allow more Australians to feel part of our economic future.**

Where to from here?

This will be the year to put many of the Government's strategies into action and take the consultation of 2023 through to implementation. We must properly address the major short-term challenges facing us – in particular, getting inflation under control, addressing housing shortages and accelerating the energy transition. Failing to do so will leave us worse off over time, and risks entrenching intergenerational disadvantage, poor business conditions and lower living standards.

We must also use this year to ensure Australia remains a productive, dynamic and resilient nation over the long term. To this end, CEDA will continue to encourage action on the most pressing issues facing the economy in 2024 and beyond.

1. **THE LABOUR** MARKET MUST **WORK EVEN** HARDER THIS YEAR

1. THE LABOUR MARKET MUST WORK EVEN HARDER THIS YEAR

Liam Dillon
Economist, CEDA

Liam Dillon is an economist at CEDA. Prior to joining CEDA in 2023, Liam worked as a researcher at the Grattan Institute, covering government finance, environmental economics and tax policy. Liam has also worked for the Victorian Parliamentary Budget Office, where he provided independent fiscal, economic and policy advice for Victorian Members of Parliament. Liam holds a Masters of Applied Economics and Econometrics (First Class Honours) from Monash University, and a Bachelor of Laws and a Bachelor of Business (Distinction) from the Queensland University of Technology.

Among the many surprises that accompanied the COVID-19 pandemic, few predicted the surge in employment that has supported the resilience of the economy ever since. The steep fall in the unemployment rate has been widely celebrated – it held steadily below four per cent throughout 2023. But this has coincided with a new headache – acute labour shortages.

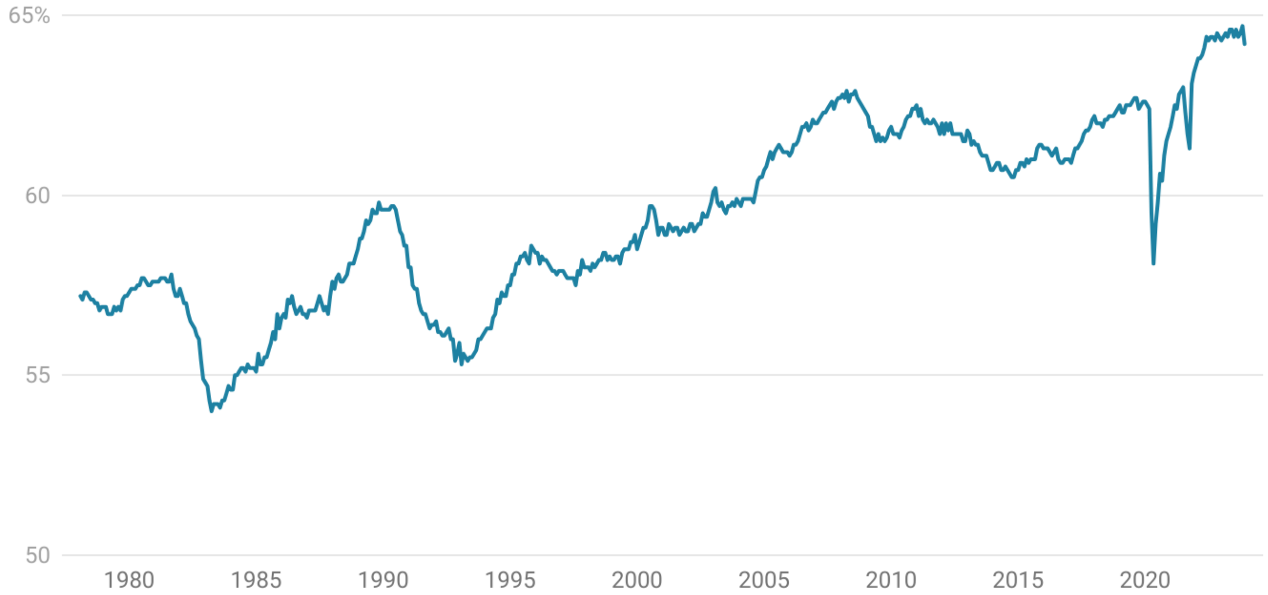
Rather than focusing on the challenges of high unemployment, the Federal Government's Jobs and Skills Summit and subsequent employment white paper, *Working Future*, instead tackled how to address a tight labour market and skills shortages.

Released late last year, the paper maps the Government's ambition for the labour market and focuses on the structural shifts underway in our economy, from an ageing population and accelerated digitalisation to the global energy transition. Central to this is a vision of full employment that creates "an economy where everyone who wants a job is able to find one without having to search for too long".[1]

FIGURE 1

Defying COVID-era expectations, employment is at an all-time high

Employment to population rate, seasonally adjusted, %



Source: Australian Bureau of Statistics • Created with Datawrapper

But there is a tension between this goal of full employment and the Reserve Bank's consistent messaging that higher unemployment is the cost we bear to get inflation under control. The Government must ensure its employment measures don't work against monetary policy and risk stoking inflation, while making the trade-offs clear.

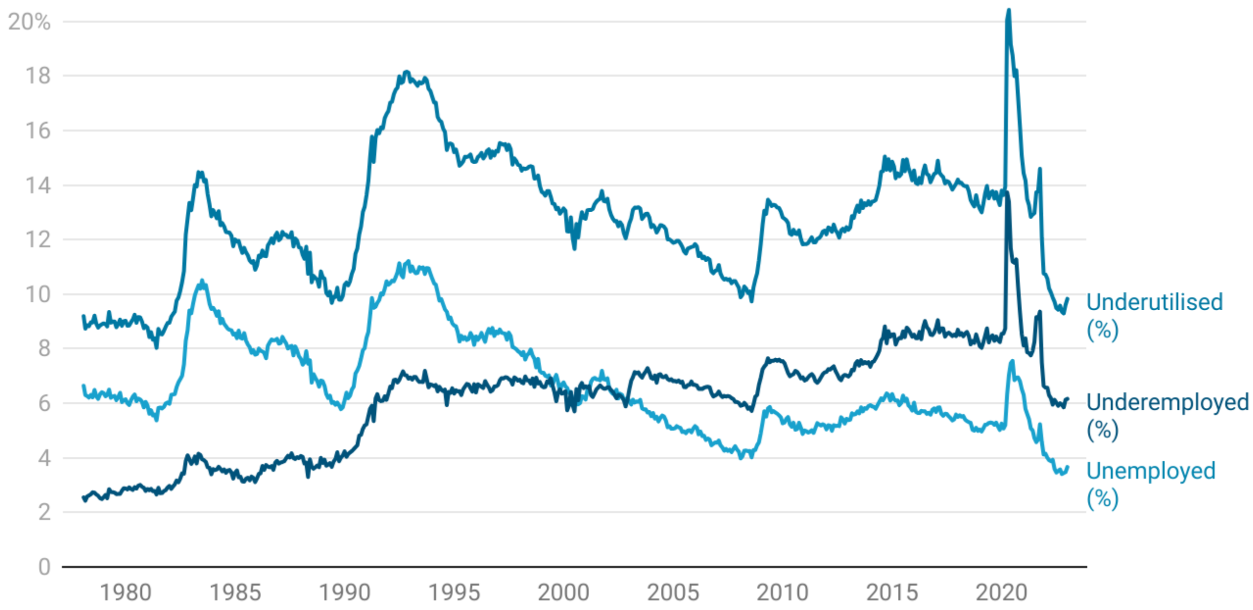
The objectives in *Working Future* represent the ultimate goal of any labour market – achieving high productivity and wage growth coupled with low unemployment and sustainable inflation. This is easier said than done. To move towards this goal, the Government must act on three key challenges.

“The Government must ensure its employment measures don't work against monetary policy and risk stoking inflation, while making the trade-offs clear.

FIGURE 2

We can do more to tackle underemployment and underutilisation

Seasonally adjusted rates of unemployment, underemployment, and underutilisation, %



Source: Australian Bureau of Statistics • Created with Datawrapper

First, we must improve labour mobility and dynamism by tackling regulatory barriers and focusing on productivity. Second, improved participation and inclusivity among groups who have struggled to engage fully in the workforce must continue to be a priority. Finally, we must address known and persistent skill shortages for structurally significant areas like healthcare, technology and climate change. This means bolstering the supply of workers through a responsive education system and optimising our migration system.

The proportion of occupations facing skills shortage on the national Skills Priority List grew by five percentage points to

36%

in 2022-23

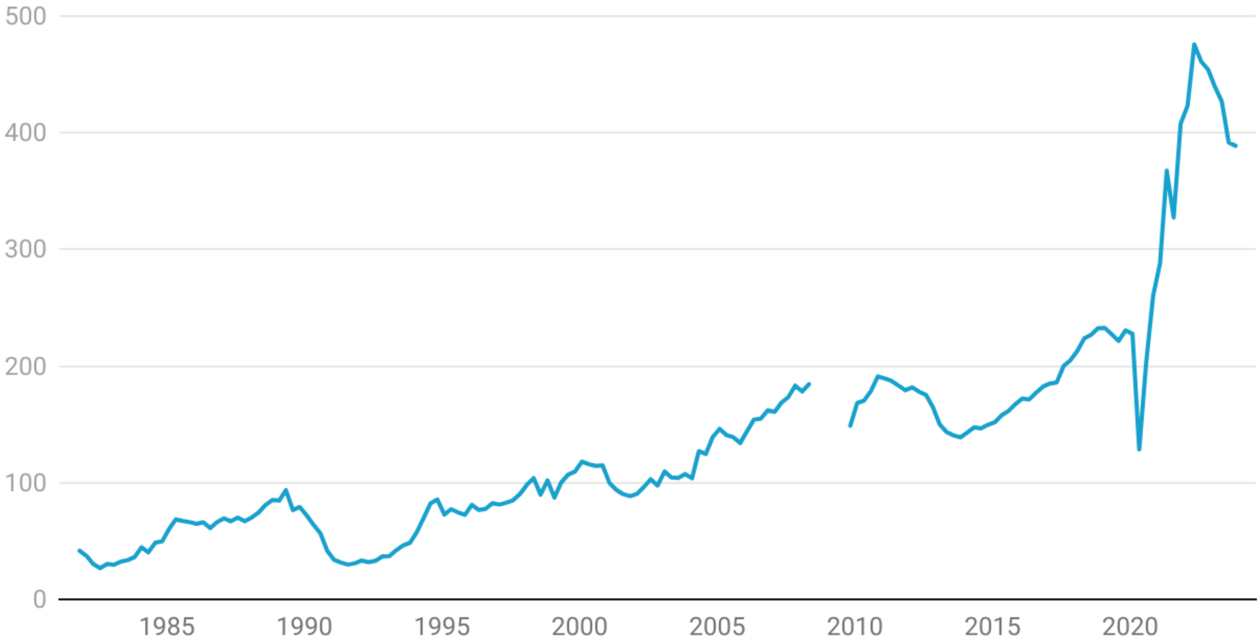
Increased labour mobility and dynamism can put the right skills in the right places

Skills shortages in some key occupations are now so large they risk frustrating our national strategic objectives. The proportion of occupations facing skills shortage on the national Skills Priority List grew by five percentage points to 36 per cent in 2022-23,[2] and has expanded by 17 percentage points since 2020-21.[3] Many of the occupations in shortage have had an inadequate supply of workers for more than two years.[4]

FIGURE 3

Despite recent softening, demand for workers remains high

Job vacancies, seasonally adjusted, 000s



Source: Australian Bureau of Statistics • Created with Datawrapper

Enhancing mobility and dynamism in our labour market are critical steps to relieve these shortages, and should be addressed by refining occupational licensing settings and leveraging new technologies like artificial intelligence.

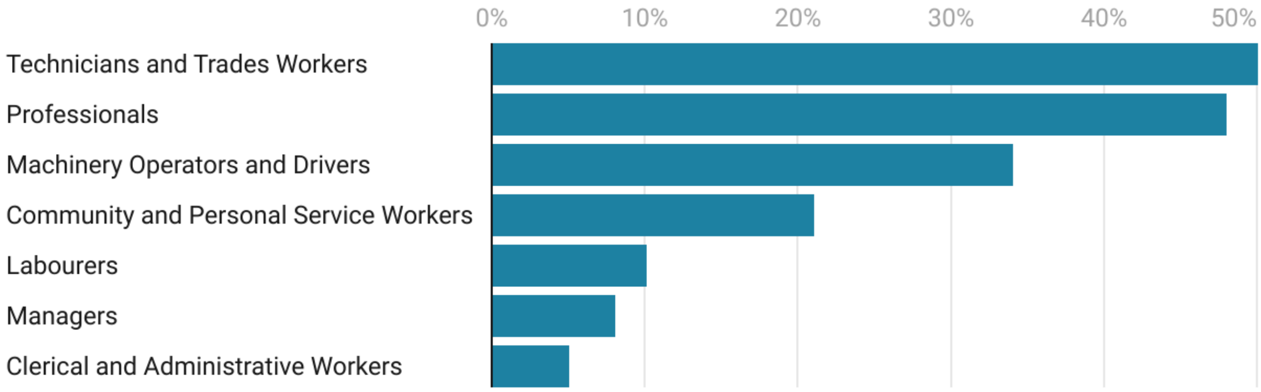
As CEDA research has shown, occupational licensing is widespread in Australia, covering one in five employees.[5] Stringent conditions that go beyond what is needed to protect safety and rules that don't recognise skills and experience gained interstate limit both the supply and mobility of workers, exacerbating shortages and driving up prices.

Working Future recognises this problem, and the Government says it is "improving cross-jurisdictional worker mobility through digitalisation of occupational licensing".[6] While digitalisation can enhance productivity, it is no substitute for dismantling overly restrictive regulation in a time of acute labour shortages.

FIGURE 4

Major industry groups face high levels of worker shortage

Proportion of occupations in ANZSCO major group facing shortage, 2023, %



Source: Jobs and Skills Australia • Created with Datawrapper

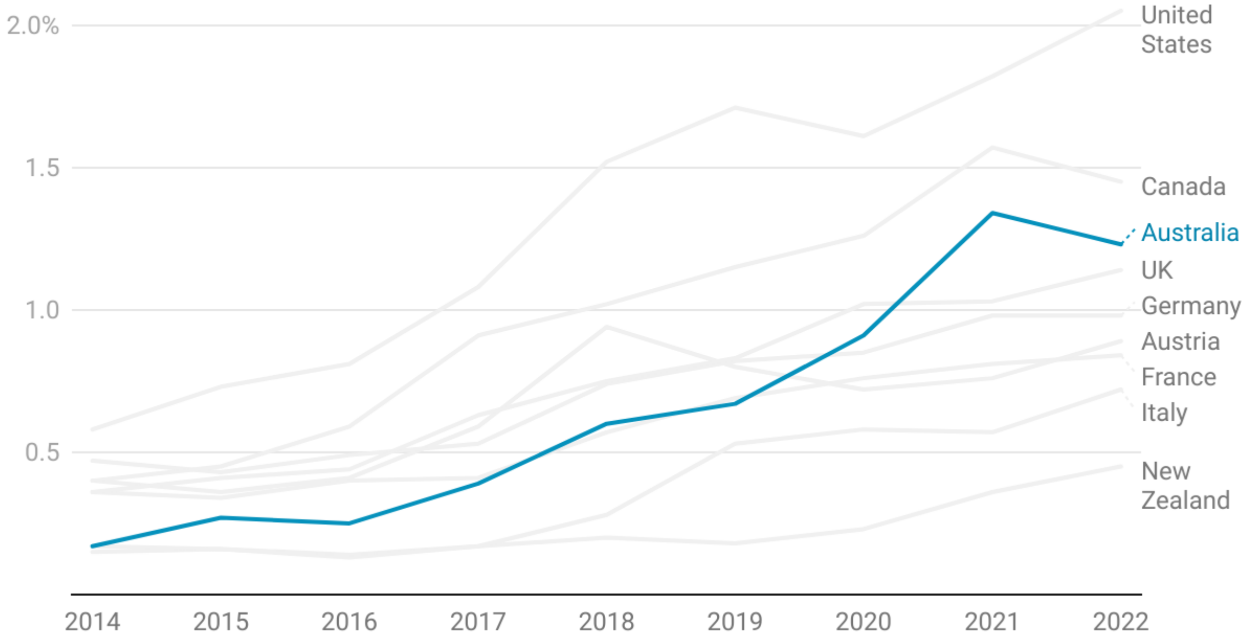
The Automatic Mutual Recognition scheme introduced in 2021, which automatically recognises the skills of tradespeople between several states, is a good step to reduce mobility barriers for licensed workers. But with Queensland (the largest recipient of interstate migration) still not participating in the scheme, its benefits are not being fully realised.[7,8]

Reducing the coverage and rigidity of licensing could deliver lower prices, enhanced labour mobility between states and up to $5 billion in benefits from higher productivity.[9]

FIGURE 5

Australia has seen strong growth in AI-related job listings

Proportion of AI Job Postings, 2014-22, %



Source: Stanford University • Created with Datawrapper

We should leverage artificial intelligence to boost labour market outcomes

This year, advances in artificial intelligence (AI) and its adoption will increasingly reverberate through the labour market. While well-worn concerns about new technology replacing workers have already been voiced, emerging international evidence suggests that AI tools in the short-term will primarily be used to complement rather than replace employees.

A study by the United States' National Bureau of Economic Research found that when a digital AI assistant was selectively made available to customer service agents, those with access to the assistant notched a 14 per cent increase in productivity.[10] Importantly, these gains were more than doubled for inexperienced and low-skilled workers, highlighting the potential for AI to accelerate integration of new workers and compensate for skills shortages in the workforce.

In addition to boosting productivity, AI may also help strengthen inclusivity and reduce barriers to participation.

Personalised reskilling and training programs supported by AI for long-term unemployed workers may help address the deterioration of skills due to long spells out of the workforce. They may also create new avenues for learning among disadvantaged groups who have historically struggled to afford individualised education and training.[11]

Despite having a low barrier to entry, the broader use of AI still requires a base level of digital skills, which up to one-third of adults lack.[12] This, and uncertainty around the direct applications of AI, supports the need for an ongoing focus on foundation skills.

These skills need to be prioritised both at the school level and among the current workforce. Supplementing the skills of current workers may be achieved through micro-credential offerings at vocational institutions, with course materials that are supported by the findings of Jobs and Skills Australia's (JSA) upcoming Foundation Skills Study.

Importantly, initiatives should be targeted to ensure that relevant skills are cultivated across the income distribution to avoid the benefits of AI being disproportionately concentrated among wealthier workers.

From insights to action on inclusivity

Working Future rightly emphasised the need for Australia's workforce to become more inclusive. But we need to act with greater urgency to address the entrenched structural barriers that continue to prevent so many from accessing work.

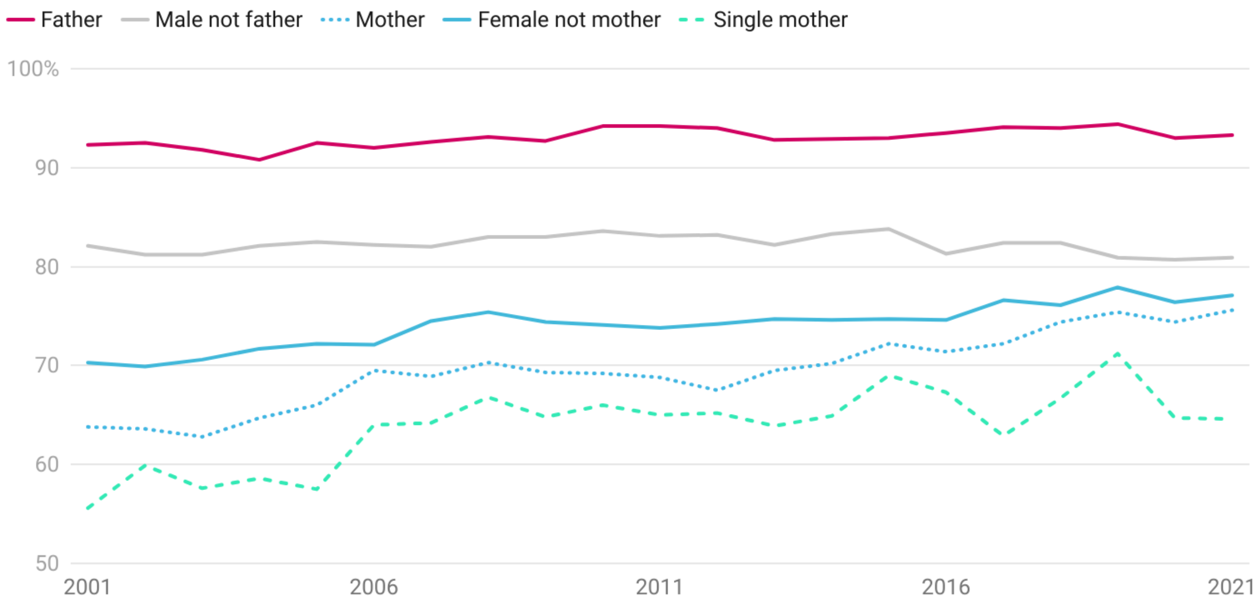
While increased funding for the ABS to examine labour market data should support rigorous policy evaluation and workforce planning, existing research already lays bare the scale of the challenge we face for workforce inclusion.

These challenges are acutely felt by Australian women, whose workforce participation remains disproportionately low because of their caring responsibilities.

FIGURE 6

Parenthood still deepens participation gaps between men and women

Labour force participation rate by sex and parenthood status, age 20-64, %



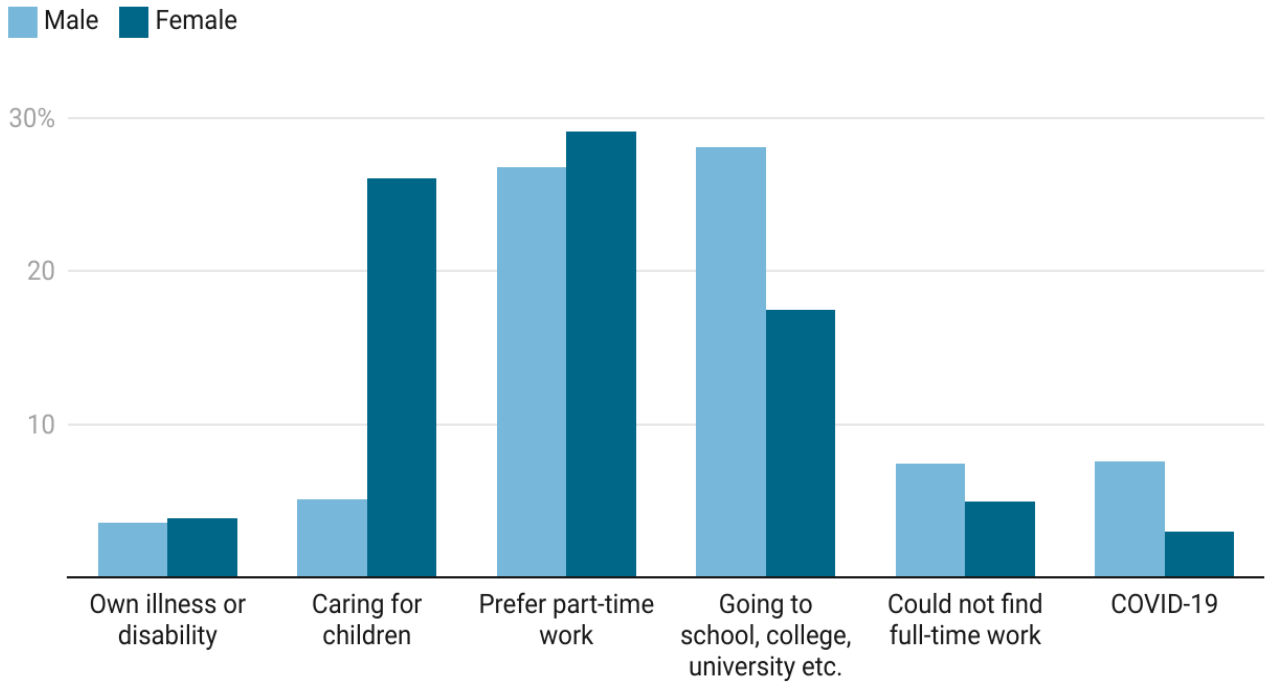
Source: OECD • Created with Datawrapper

The rate of single mothers participating in the labour force has flatlined since 2006 at 65 per cent – the participation rate for fathers, meanwhile, is over 90 per cent.[13] The uneven burden of care brings with it real financial consequences felt in both the years following childbirth and through to retirement.[14,15]

FIGURE 7

Caring responsibilities push women towards part-time work

Main reason for working part-time hours, 2021, %



Source: OECD • Created with Datawrapper

The white paper recognises the role that strong paid parental-leave settings and affordable childcare can play in facilitating participation for women in work. However, for those unable to pursue the careers they want due to a lack of childcare options, the Government's vague promise to "chart a course" to universal affordable childcare as a "future reform direction" will ring hollow.[16] Policies to improve access to childcare and support participation should be a priority for the Government this year, not later.

Comprehensive strategies to address skills shortages are needed

While worker shortages have been felt across the economy, they are concentrated in areas of strategic significance – healthcare, technology and the energy transition. We urgently need to boost the supply of workers in these areas through a high-performing education sector and fit-for-purpose migration system.

More than 80 per cent of professional health occupations faced worker shortages in 2022-23,[17] and a lack of skills contributed to an 18 percentage point drop in fill rates for vacancies (just

44 per cent) since 2022.[18] CEDA research has repeatedly highlighted the dire shortages in the aged-care sector and the impact it is having on the ability to deliver the appropriate quality and quantity of care required.

Similarly, JSA's recent Clean Energy Capacity Study warned the current pipeline of electricians and other trade workers integral to the energy transition is inadequate. The study projects that an additional 85,000 electricians will be needed by 2050, with 32,000 of these required over the next seven years.[19]

The critical role that training and education will play in delivering the workers needed in these sectors means proper execution, monitoring and evaluation of supporting policies will be crucial. The lacklustre performance of the Morrison Government's Job-Ready Graduates program is a recent reminder of how well-intentioned initiatives can fail to hit the mark.[20]

Strengthening training and education

The National Skills Agreement, which commenced in January, and the related Universities Accord final report, delivered to the Government late last year, are some of the key measures to invigorate our skills pipeline.

The Universities Accord – just the third review of higher education in nearly four decades – provides a sweeping analysis of the system's capacity to meet current and future skills needs. The Government has committed to act on the accord's interim priority steps, including establishing 20 regional study hubs, as well as extending demand-driven funding for all First Nations students.[21]

These measures are an important first step to address the accessibility challenge of higher education as completion rates and demand for university places decline, with first bachelor-degree completions at their lowest level since 2014.[22] Broadening access to tertiary institutions, particularly for groups facing entrenched disadvantage, will help break down structural barriers to education that can have lifelong impacts on earnings and employment.

Stronger links between universities and industry can also ensure training is relevant and foster increased innovation and commercialisation of research, an area where Australia lags behind.[23] Combined and well-executed, these two factors can boost labour force productivity and wages for workers who are better equipped for the jobs of the future.

The National Skills Agreement allocates $3.7 billion over five years to strengthen vocational education and will deliver 300,000 fee-free TAFE places in 2024.[24]

"

Broadening access to tertiary institutions, particularly for groups facing entrenched disadvantage, will help break down structural barriers to education that can have lifelong impacts on earnings and employment.

The first TAFE Centres of Excellence are also expected to open this year, and are designed to provide national co-ordination and leadership in the delivery of skills, vocational education and training in critical areas such as the net-zero transition, the care sector and digital skills.[25]

Changes to vocational education need to be underscored by flexibility and agility across its offerings. Short programs in particular can enable training options to meet rapidly changing industry needs, support reskilling for workers dislocated by technological or economic shifts, and encourage accessibility.

Unfortunately, improved training and education will only take us so far in increasing the supply of workers. JSA's 2023 labour-market report found 40 per cent of occupation groups in shortage faced a long training gap – that is, worker deficits for these groups were exacerbated by applicants needing a Certificate IV, apprenticeship or bachelor's degree, which can take anywhere between six months to four years to complete.[26]

The role of migration

The lag between training and workers entering employment means we cannot downplay the importance of migration in meeting our labour market needs in the short term. With a migration intake that historically delivered a third of our skill needs and attracts younger-skewing, innovative workers who can help meet shortages and spur productivity, we must make the most of our immigration system.

Last year's migration strategy from the Federal Government outlined the future of the Australian migration system and set a clear and much-needed direction. As always, implementation will be key to success, and CEDA maintains there is still a need for an essential skills visa focused on workers in the care sector – an area the Government has flagged as still under consideration for future reform. With the care sector crying out for workers, this should be progressed in 2024.

We must also ensure we make the most of the migrants already here. As outlined in CEDA's upcoming *Making Better Use of Migrants' Skills* report, nearly a quarter of permanent skilled migrants in Australia work in roles below their skill level.[27] Given the immediacy of our skills challenge, improving employment outcomes for these migrants through steps like improved English language training and better recognition of foreign qualifications must be a focus for policy action this year.

What's next for the workforce?

Given the long-term nature of the shifts at hand, the Government suggests success will likely be measured over years, not months. But for the three million people estimated by the white paper to be ready for more work, we can and must act with greater urgency.

We must get the right skills in the right places by boosting labour-market mobility and inclusivity, as well as strengthening the supply of workers through robust education and migration systems.

Since the Jobs and Skills Summit, warning bells have repeatedly been sounded on the need to make the most of our human capital. With labour shortages persisting it's clear we still have work to do.

2.
WFH DEBATE MUST **REFOCUS ON** PRODUCTIVITY

2. WFH DEBATE MUST REFOCUS ON PRODUCTIVITY

Melissa Wilson
Senior Economist, CEDA

Melissa Wilson is a Senior Economist, based in South Australia, at the Committee for Economic Development of Australia (CEDA). She leads CEDA's research on business dynamism and productivity, and was the lead author of the report *'Dynamic Capabilities: How Australian firms can survive and thrive in uncertain times'*. Melissa has over a decade of experience as an economist at the Reserve Bank of Australia (RBA), where she worked in a broad variety of areas including the RBA's business liaison program, overseas economies, international relations, labour markets, domestic markets, financial stability and public education.

James Brooks
Economist, CEDA

James Brooks is an Economist at the Committee for Economic Development Australia (CEDA) and has experience working on government policy from advocacy to implementation. Prior to joining CEDA, he worked at the Victorian Department of Transport and Planning in its policy reform team, which supported the State Government in responding to emerging challenges in Victoria's transport network. He also worked as a Senior Department Liaison Officer for Victoria's Public Transport Minister. James has held roles at Infrastructure Victoria, where he contributed to well-recognised research into state infrastructure policy. James has a Bachelor of Commerce, Economics major, from the University of Melbourne.

Of the many impacts of the COVID-19 pandemic, none have shaken the world of work as much as the shift to remote working and working from home (WFH).

Remote working in some form looks like it is here to stay. Yet there is currently a tension between employees wanting to work flexibly and employers increasingly pushing for a return to the office.

Balancing these different perspectives will be a key challenge over the year ahead. Managers now find themselves grappling with the nuance and complexity of new ways of working, as well as competing priorities and interests, as the remote-work experiment continues to play out in real time.

To allow this debate to disintegrate into a tug of war between firms and workers would be a missed opportunity. Instead, we should refocus on the productivity and participation gains that new ways of working could unlock, to get the right balance between diversity and inclusion, collaboration and innovation, and mental health and employee engagement.

Unlocking the productivity potential of WFH will require willingness from managers to experiment and commit to changes that make WFH more effective but also add value in the office. Further research and analysis will also be needed to learn more about the longer-term implications of new ways of working.

With labour productivity growth at its slowest pace in decades, now is the time to pull every lever at our disposal. Remote work needs to be part of the productivity discussion.

The current state of remote work

Work done outside an employer's office (remote work or working from home) is clearly popular among workers. The latest ABS data show 37 per cent of Australian workers, including 60 per cent of managers and professionals, were working from home on a regular basis in August 2023, up from around five per cent pre-pandemic (Figure 1).[28, 29] This is broadly in

We should refocus on the productivity and participation gains that new ways of working could unlock, to get the right balance between diversity and inclusion, collaboration and innovation, and mental health and employee engagement.

FIGURE 1

More than one-third of employed Australians now regularly work from home[i]

Work from home status (%)

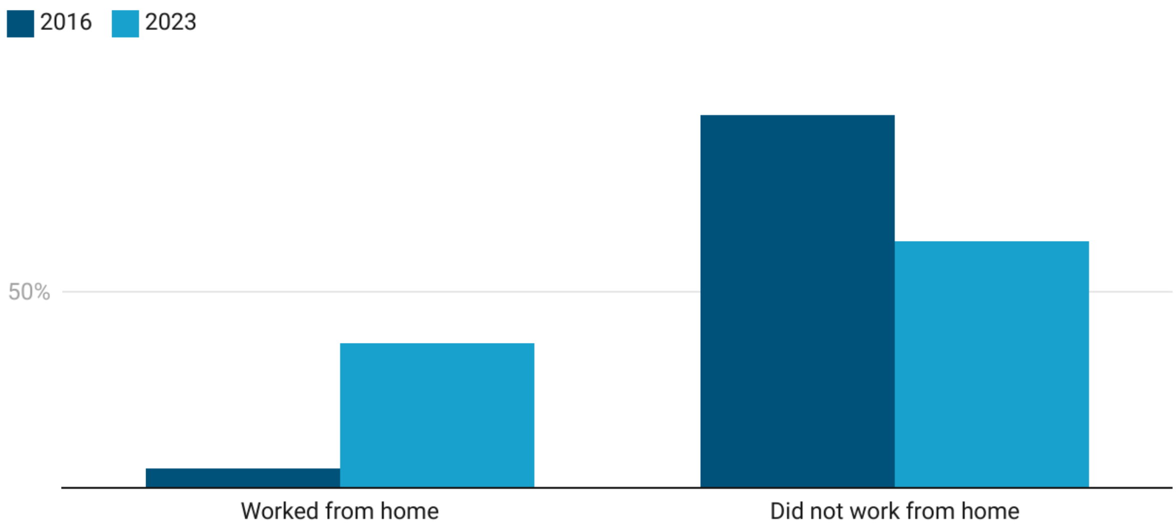


Chart: CEDA Analysis • Source: Australian Bureau of Statistics (August 2023), Australian Bureau of Statistics (2016), • Created with Datawrapper

The latest ABS data show **37%** of Australian workers, including **60%** of managers and professionals, were working from home on a regular basis in August 2023

line with the Productivity Commission's estimate that 35 per cent of jobs can be done from home, and represents a dramatic shift that has important implications for Australia's overall productivity growth.[30]

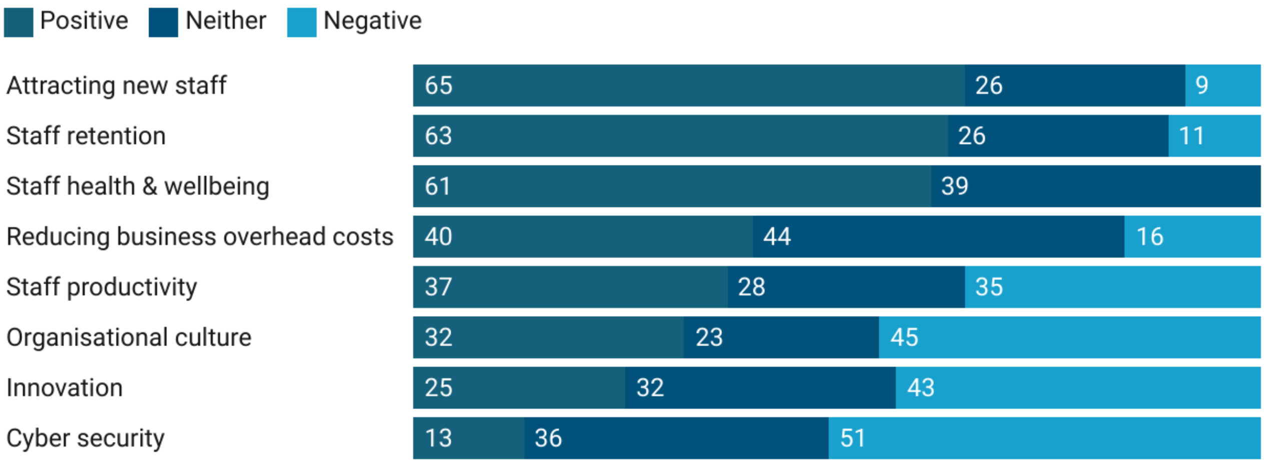
Employers, however, are less enthusiastic. A KPMG survey of more than 1300 CEOs across 11 countries found that two-thirds of CEOs expect a full return to the office within the next three years.[31] A recent survey by the Australian HR Institute found the biggest source of pressure to return to the physical workplace was senior management (85 per cent) and boards (30 per cent).[32] While around two-thirds of directors believe flexible working arrangements are good for staff attraction and retention, only 37 per cent believe they are good for productivity and even less (25 per cent) believe they are good for innovation (Figure 2).[33,34]

i This chart uses ABS data from the 2016 census and 2023 Working Arrangements survey.

FIGURE 2

Directors back flexible work for hiring and retention, not productivity or innovation[35]

How company directors rate the benefits of working from home



Source: Australian Institute of Company Directors, Roy Morgan • Created with Datawrapper

With this clear discrepancy between firms and workers, the debate about remote work risks disintegrating into an industrial-relations tug of war. When such changes are driven by who is in a position of relative bargaining strength, rather than a shared understanding of the evidence, the outcome is likely to be suboptimal, not least because outcomes are not maintained through economic cycles.

Focusing on remote work as an industrial-relations problem misses a key opportunity to examine the potential effects on productivity growth, and what this means for our society more broadly.

The WFH debate needs to refocus on productivity

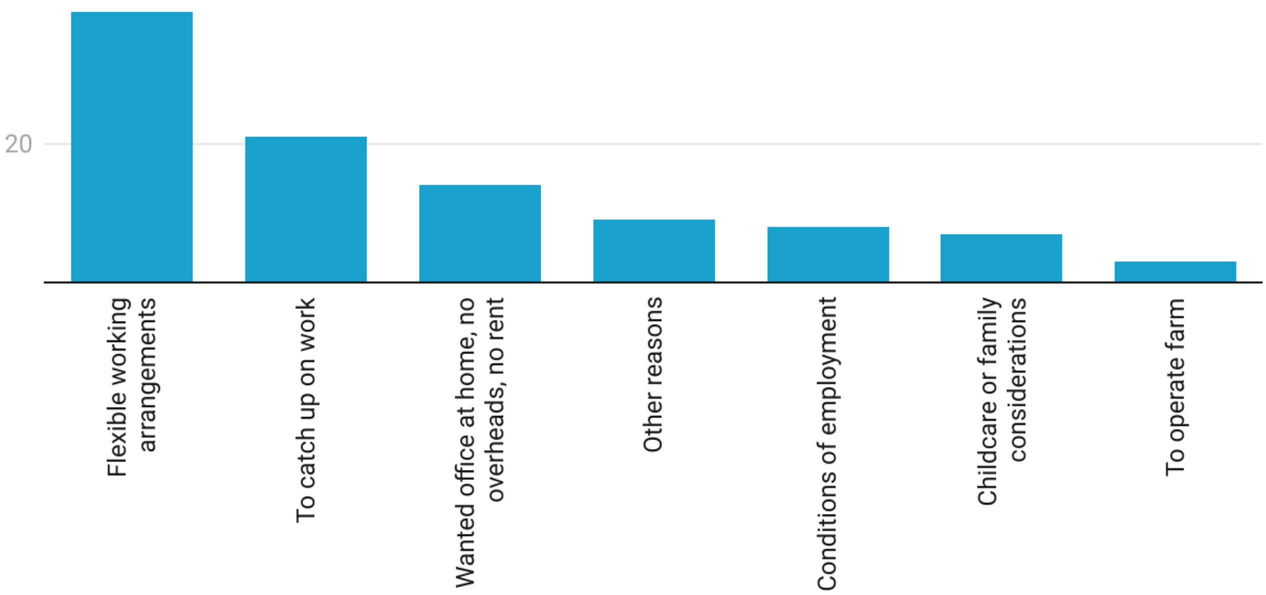
One reason why firms and workers have different preferences around remote work is because the productivity gains from working from home typically accrue at the individual level, while the productivity gains of bringing workers together in offices typically accrue to firms.

In surveys, workers often report that they are more productive at home than in the office and in 2023 almost 40 per cent of Australians said flexibility was their main reason for working from home (Figure 3).

FIGURE 3

Flexible working is the main reason for WFH

Main reason worked from home (%)



Source: Australian Bureau of Statistics • Created with Datawrapper

In contrast, the productivity gains from working in an office typically manifest at the team or organisation level, are less tangible to workers and take longer to accrue. These include gains from collaboration, mentoring of junior workers and oversight of teams.

The overall productivity impact of remote work therefore depends on the net impact of a range of factors. The research in this area is still in its infancy and there is much to learn. Broad-based working from home is a relatively new phenomenon and more analysis is needed to understand the longer-term implications. Many of the studies conducted so far rely on data from the pandemic, subjective measures of productivity, or were conducted in developing countries. Participants in the WFH debate bring different perspectives and have different agendas, which can contribute to a sense of confusion and conflict.

> **“Studies so far suggest that while fully remote work might be the most productive outcome at the individual level for some workers, it tends to reduce productivity at the firm level.**

Nevertheless, studies so far suggest that while fully remote work might be the most productive outcome at the individual level for some workers, it tends to reduce productivity at the firm level.

> “
>
> CEDA analysis … has found that workers with a health condition or disability that affects their ability to work, women with children and carers have significantly increased their workforce participation in occupations that have made large transitions to remote work since the pandemic.

In contrast, firms adopting a hybrid approach with some time spent in the office can achieve the best of both worlds, with firms generally experiencing no productivity loss and potentially some productivity gain.[36]

With growing acceptance and evidence in favour of hybrid work, a key challenge for firms over the year ahead will be to experiment and find the best approach for their unique teams and circumstances. Finding the best way to maximise overall productivity will be crucial, and managers will play a vital role. Robust data and analysis will be needed to support quality decision-making.

Three central considerations from a productivity perspective are the impact of working arrangements on (i) workforce diversity and inclusion, (ii) innovation and collaboration and (iii) employees' mental health and engagement.

Diversity and inclusion

Firms benefit from hiring from a larger, more diverse group of workers as they are more likely to find a worker with the skills and talents to match the firm's needs. Diversity within teams also enriches the quality of inquiry, problem solving and decision-making.[37] For example, a large study undertaken by Boston Consulting Group found increasing diversity in leadership teams led to better innovation. It found firms with above-average diversity on their management teams had 19 percentage points higher revenue due to innovation. Remote work has also benefited boards, making it easier to attract directors from overseas or interstate. Previous CEDA research found that firms with more diverse boards also tended to be more dynamic.[38]

For some people, such as those with long-term health conditions or disability, parents of young children or other primary carers (such as those caring for elderly relatives), attending work in-person has been a barrier to workforce participation. Remote and flexible working has often been valued by these groups, but until the pandemic it was not always available. With flexible work now normalised in more occupations, workers with a greater need to work from home now have access to a broader range of jobs and opportunities.

CEDA analysis of the Household Income and Labour Dynamics in Australia (HILDA) data Release 22,[39] which includes responses from the second half of 2022, has found that workers with a health condition or disability that affects their ability to work (an impactful condition), women with children and carers have significantly increased their workforce participation in occupations that have made large transitions to remote work since the pandemic (or "WFH occupations"; Figure 4). We find that these groups have increased their labour force participation by significantly more than other comparable workers. This suggests that the pandemic acceleration of WFH and a strong labour market have contributed to overcoming barriers and stereotypes that have until now limited participation for these groups.

Our analysis also shows that WFH rates among the general population have caught up to WFH rates of workers with an impactful condition, women with young children and carers (Figure 5). In other words, WFH has levelled the playing field. These shifts can help the Federal Government achieve its new definition of full employment, where "everyone who wants a job is able to find one without searching for too long".[40]

These outcomes are a clear win for workers, employers and the economy, but may be at risk when the labour market inevitably softens. We must focus on maintaining these pandemic-induced benefits into the future.

FIGURE 4

WFH has contributed to a larger increase in labour force participation for some groups

Participation in working-from-home occupations

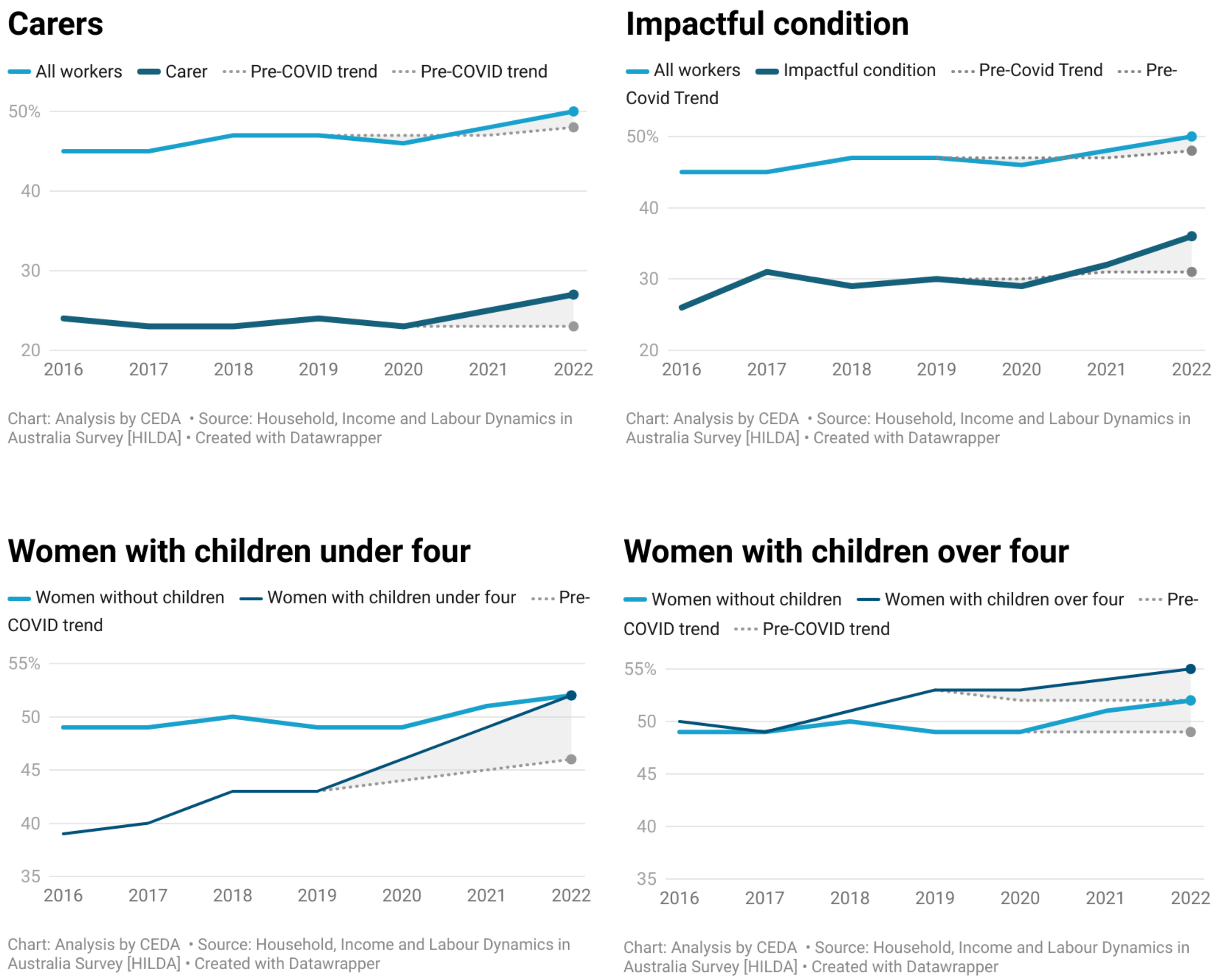
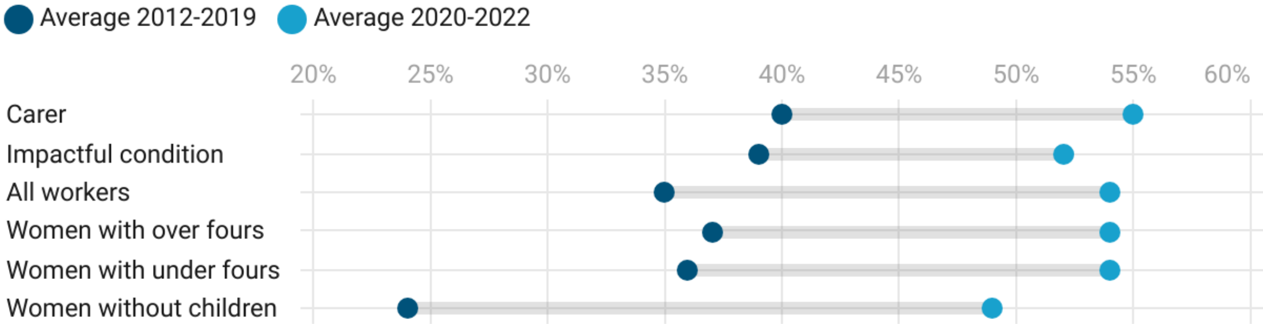


FIGURE 5

Rates of WFH are now similar across all groups of workers

Percentage of workers who WFH in selected WFH occupations



Source: Household Income and Labour Dynamics Survey Australia, 2023. • Created with Datawrapper

*In Figure 4 and 5, we only consider the workforce outcomes of people in 'working from home occupations', these are occupations which reported large increases in working from home because of the pandemic, such as Managers and Professionals. Some occupations, such as farmers, have always had high rates of working from home, but are unlikely to be telecommuting. Considering only these occupations allows us to better understand the effect of telecommuting brought about by the pandemic.

Innovation and collaboration

The evidence so far shows that in-person collaboration is better for innovation than virtual collaboration. One study published in *Nature* found videoconferencing inhibits the collaborative production of creative ideas by prompting a narrower cognitive focus (on a screen).[41] In contrast, the study found some evidence that videoconferencing could be more effective than in-person groups when it comes to selecting which ideas to pursue, which requires a narrower focus.

Employers have been concerned that working from home reduces the frequency of serendipitous interactions, or "watercooler moments", between colleagues. Serendipitous exchange of knowledge and ideas is also conducive to innovation and face-to-face interactions have been found to substantially increase knowledge flows.[42] Some businesses are trialling different ways to initiate "structured serendipity" across geographically dispersed workforces, such as scheduling "speed-dating" sessions or random coffee meetings as a way of establishing connections between colleagues who would otherwise not interact with one another.

> **Serendipitous exchange of knowledge and ideas is also conducive to innovation and face-to-face interactions have been found to substantially increase knowledge flows.**

A related task that is often undervalued by workers is the mentoring of junior or less experienced staff. This is important in many roles that can be done remotely, even those with routine tasks.[43] Mentoring is important for building the productive capacity of junior workers, and happens more organically in person. Yet it is often overlooked by busy managers, especially if they are not directly rewarded for mentoring or coaching, and are instead focused on tasks that are more urgent or more directly linked to their own KPIs. CEDA's dynamic capabilities research found that managers are often too tied up with "business as usual" to focus on long-term capability building.[44]

All of this suggests that coordination of in-person office days is important for teams to maximise the benefits of hybrid working arrangements. Evidence also shows that teams suffer from lost collaboration as soon as one team member works from home.[45] Additionally, as more members of a team work remotely, there are higher attrition rates for those remaining in the office.[46]

Mental health and employee engagement

Investing in the mental health and engagement of employees leads to increased productivity and better business outcomes. Poor mental health costs the Australian economy between $12.2 billion and $39.9 billion each year in lost productivity and participation.[47] Median compensation claims relating to mental-health costs tripled in just under 20 years to 2018-19, and could triple again by 2030.[48] In contrast, highly motivated and engaged workforces are also more productive.

Job design is critical to mental health and engagement. On the one hand, potential downsides of WFH can include loneliness, longer work hours and the blurring of boundaries between work and home.[49] These effects vary depending on gender, age and household circumstances.[ii] On the other hand, potential benefits of WFH include reduced commute time, a quieter working environment, less burnout and more autonomy.

Survey results indicate that levels of loneliness and poor mental health were not worse when people worked from home, while satisfaction with work-life balance improved.[50] The overall conclusion from this study was that there seemed to be no evidence of an increased risk to mental health for people who choose to work from home.

ii Productivity Commission. (2021). Working from home https://www.pc.gov.au/research/completed/ working-from-home/working-from-home.pdf

“

Research shows that good management can be the difference between positive or negative productivity outcomes when employees work exclusively remotely.

This is consistent with international research. For example, the World Health Organisation found a small but positive effect of flexible working arrangements on mental health.[51] There is also evidence that working from home reduces absenteeism and improves autonomy.[52]

Several studies have found that hybrid work arrangements are optimal for mental health. For example, in a 2023 Flexjobs survey of more than 5600 working professionals almost half said a hybrid work arrangement would best support their mental health.[53] Other studies have found similar results.

While the evidence to date suggests that WFH can have a positive effect on employee engagement and mental health, there is still much we don’t know. More research and measurement will be needed, particularly into the long-term effects.

Good management is critical

Good management will be critical as firms work to establish the most productive ways of working over the year ahead. For example, research shows that good management can be the difference between positive or negative productivity outcomes when employees work exclusively remotely.[54]

As more firms experiment and more research is done, our understanding of the most productive approaches will evolve. It will be up to managers to make remote working work in practice for their teams, to test different approaches and capture the information needed to make good decisions, and to bridge the gap in expectations between employees and CEOs where necessary.

What is clear so far is that hybrid work is much more complex to manage. Managing remote or hybrid workforces will require a high level of coordination of both people and tasks. Managers must be willing to experiment to find what works for their teams and organisations, and continue to adjust and adapt as circumstances change. They will also need new ways of monitoring employees who they cannot physically observe, based on objective measures of output rather than hours.[55]

All of this may be easier said than done. Even if managers figure out the most productive way of working for their team, implementation will need acceptance and willingness from employees to be successful.

> There is evidence that forcing workers into the office can be detrimental. One US study of firms with return-to-office mandates found they significantly reduced employee satisfaction and did not improve firm performance (profitability or stock-market valuation).

There is evidence that forcing workers into the office can be detrimental. One US study of S&P 500 firms with return-to-office mandates found they significantly reduced employee satisfaction and did not improve firm performance (profitability or stockmarket valuation).[56] This suggests that employee buy-in matters, and an alternative approach may be needed. Managers will need to consider this carefully. Communication with employees will be critical. Almost a third of organisations say they have not consulted with their staff about hybrid working arrangements.[57]

This increasingly complex and uncertain environment will require more dynamic managers. Previous CEDA research found that firms with more dynamic management capabilities had significantly better employee-related performance and productivity outcomes during the pandemic.[58]

Managers should focus their attention on the 'no regrets' changes that make WFH more effective, but also add value in the office. When it comes to the role of managers in the three key areas we have focused on in this chapter:

- Managers should recognise that WFH deepens the pool of available workers with benefits for **diversity and inclusion**, and consider what is needed to make this successful over the longer-term. With certain groups having a stronger preference for working from home, unlocking these diversity benefits may require more bespoke working arrangements, rather than adopting a 'one size fits all' approach.
- Given evidence that **innovation and collaboration** is more effective in person, when all team members are present, a challenge for managers will be how to coordinate and reward collaborative behaviours in hybrid workforces. This will involve using the lessons of WFH to drive new ways of communicating, clearer performance expectations, and more formal staff mentoring and development.
- It will be up to managers to optimise their hybrid arrangements in a way that supports employees' **mental health and engagement**. Management capability is one of the most influential contributors to improving mental-health outcomes for employees.[59] CEDA has previously proposed a framework for organisations that focuses on building strong foundations through good job design, strong management capability and a supportive organisational culture.

> “
>
> Our analysis shows that WFH has been a clear win for diversity and inclusion. We must now focus on maintaining these benefits, even as the labour market softens.

These layers of complexity are adding pressure on managers, who might also need additional skills and support. The Australian HR Institute has found that so far only one-third of organisations have provided any training to line managers on how to manage remote or hybrid working.[60] If this training gap is not addressed there is a risk that the benefits of remote work seen to date might be difficult to sustain over the longer term.

The year ahead

The COVID-19 pandemic changed the way we worked at unprecedented pace and scale. This remarkable shift was made possible by firms and workers coming together to prioritise the greater good. While the health emergency has now passed, the greater good must remain part of the conversation if we are to unlock the productivity potential of WFH.

It is still too early to draw firm conclusions about the overall impact on productivity, but what we know so far is that remote work in some form looks like it is here to stay. Our analysis shows that WFH has been a clear win for diversity and inclusion. We must now focus on maintaining these benefits, even as the labour market softens. In contrast, there is some evidence that innovation and collaboration are more effective in-person, while uncertainty remains about the longer-term impacts of WFH on employee development, mental health and engagement.

For researchers and policymakers, consistent measurement and robust datasets will be critical to fully understanding the productivity implications of WFH over the longer term. High quality analysis will be essential to support high quality decision-making.

Employers will need to focus on what matters most for their businesses over the year ahead. Implementing changes that make both remote and in-office work more effective – such as clarifying performance expectations, formalising mentoring and developing the communication and management skills needed for success in a hybrid environment – will be a good place to start.

More broadly, while hybrid arrangements appear promising in terms of balancing productivity, participation and employee preferences, firms will need to experiment with different approaches to find what works for them. This will require new frameworks to capture the information needed to make informed decisions, being mindful that the best approach may change over time.

Navigating nuance and complexity will be a key challenge. Employers should remain willing to take risks and experiment – as they did to their great benefit during the pandemic – while they grapple with making remote working work for them over the long term.

Much of this challenge will fall to managers, who will need to bridge the gap between workers and leadership to find the best approach. Managers will need to be dynamic and able to respond to complex and evolving circumstances in their teams and organisations. Change will be the only constant in this challenge.

3.
A CRITICAL YEAR FOR EMISSIONS **TARGETS AND** ENERGY POLICY

3. A CRITICAL YEAR FOR EMISSIONS TARGETS AND ENERGY POLICY

Andrew Barker
Senior Economist, CEDA

Andrew Barker joined CEDA in 2022 as a Senior Economist based in Brisbane. He was previously a Senior Economist and Head of Desk in the OECD economics department, focusing on climate, labour market, productivity and housing policy. As a Research Manager at the Productivity Commission he led quantitative work on water, gas and labour markets and contributed to public inquiries on infrastructure access, automotive manufacturing, service exports and the economic effects of migration. Andrew holds a Master of Commerce (economics) and First Class Honours degrees in economics and environmental engineering from the University of Melbourne.

Tough decisions will be needed on energy policy this year to ensure Australia meets its emissions-reduction targets, while protecting energy affordability and reliability of supply. There are looming challenges on all three fronts, as policy uncertainty over the last 15 years has held back investment in the necessary generation, storage and network assets.

Reliability challenges are intensifying

Every mainland state will face reliability issues over the next decade based on current investment plans, with some states facing reliability issues from this year.

The Australian Energy Market Operator (AEMO) has warned that the reliability of the National Electricity Market is at risk unless there is urgent investment, with 62 per cent of coal-fired power plants expected to close before 2033.[61]

Considering only committed energy-infrastructure investment, AEMO says reliability risks will exceed the relevant standard from 2023-24 in Victoria and South Australia, 2025-26 in NSW and 2029-30 in Queensland.[62]

> If policies announced but not yet fully developed are implemented, emissions are estimated to fall by 42 per cent by 2030, just missing the 43 per cent target.

Western Australia's South West Interconnected System has a higher share of gas generation, providing greater flexibility. But in 2023, for the first time, AEMO identified looming generation shortfalls due to increasing demand and the planned retirement of coal-fired generators.[63]

Australia's east-coast gas market is forecast to have sufficient supply in 2024, but LNG producers will need to commit small amounts of additional gas to the domestic market to avert a shortfall in winter.[64] AEMO has estimated that businesses and households are at greater risk of winter shortfalls from 2027 onwards, amid dwindling production from the Bass Strait, the biggest source of domestic gas for the east coast.[65]

In WA, the gas market should be finely balanced until 2032, with some shortfalls from 2030 onwards as coal generation retirements increase demand for gas-fired power, along with a decline in production from existing gas fields.[66]

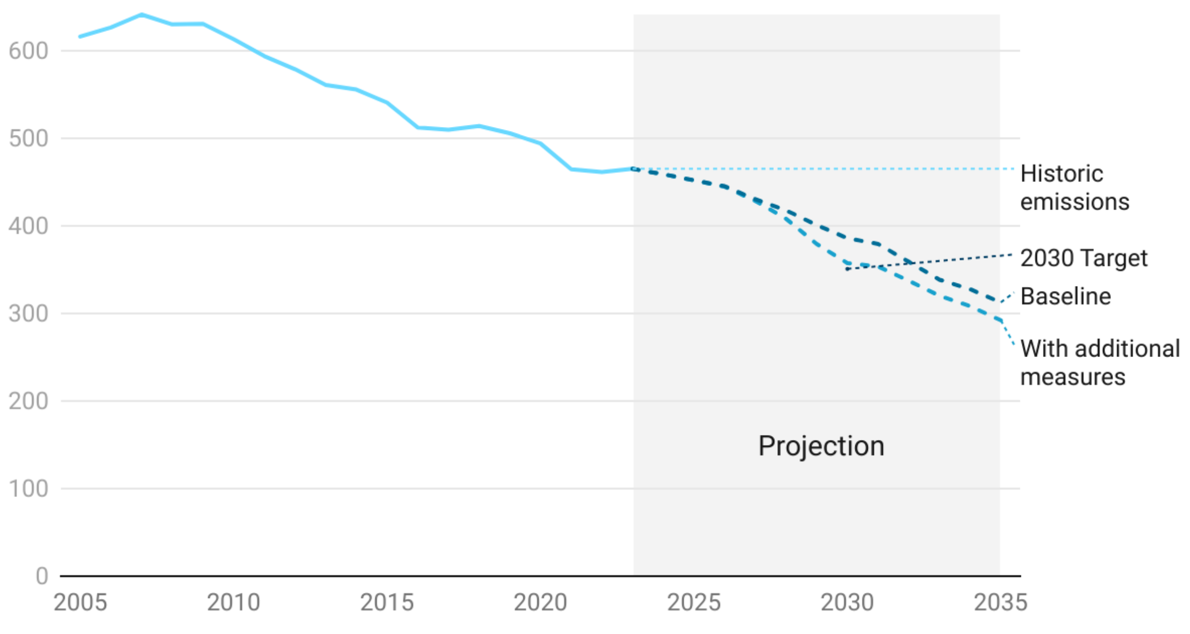
Emissions target in doubt

The Federal Government has legislated to achieve net-zero greenhouse-gas emissions by 2050, with an interim goal to cut emissions by 43 per cent from 2005 levels by 2030. Based on policies implemented or where design is well progressed, Australia is projected to cut its emissions by 37 per cent by 2030, missing its target by 35 million tonnes of carbon dioxide (Figure 1).

FIGURE 1

Australia is not on track to meet its 2030 emissions target

Emissions projections under the baseline and with additional measures (Mt CO_2-e)



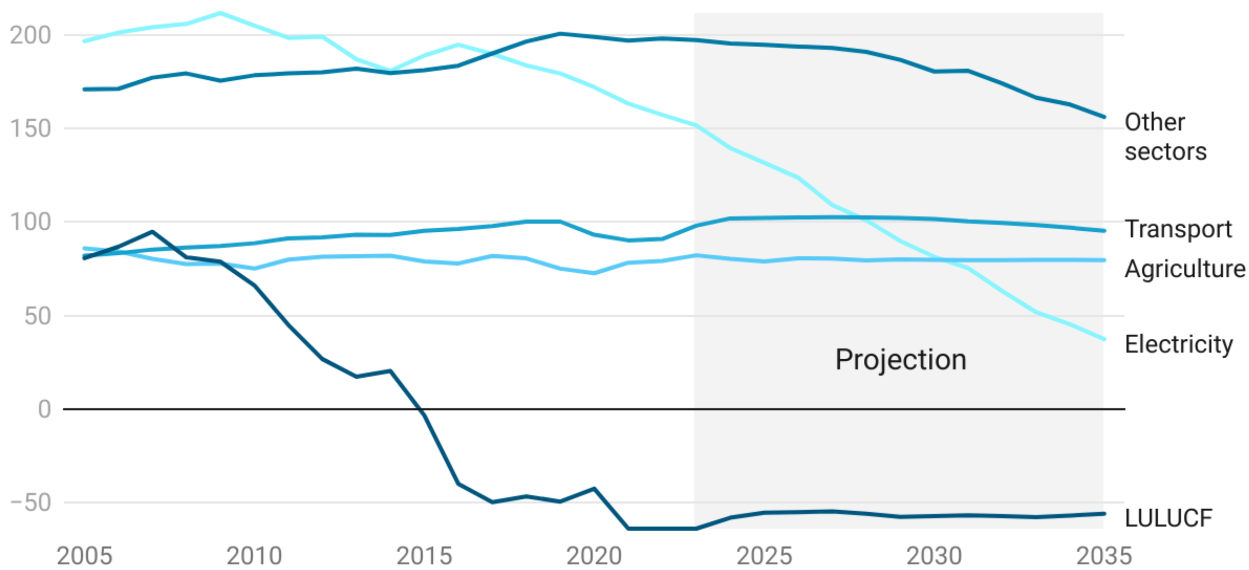
Source: Department of Climate Change, Energy, the Environment and Water • Created with Datawrapper

The Government's plans place much of the burden on the electricity sector (Figure 2). While this reflects the ready availability of renewable-generation projects, there are big challenges to recruit the skills, expand the networks and get the planning approvals necessary to roll these out at sufficient scale.

FIGURE 2

Emission reductions are expected to be mainly in electricity

Emissions projections under the baseline scenario, Mt CO_2-e



LULUCF = land use, land use change and forestry. Other sectors include industrial processes, waste, stationary energy and fugitives.

Source: Department of Climate Change, Energy, the Environment and Water • Created with Datawrapper

"

There are big challenges to recruit the skills, expand the networks and get the planning approvals necessary to roll out renewable-generation projects at sufficient scale.

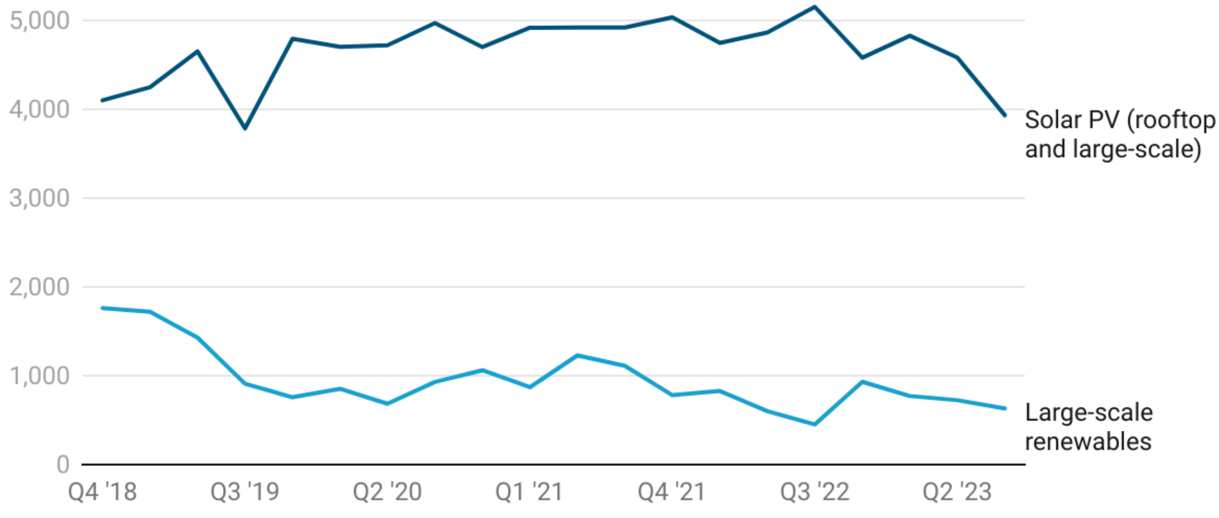
Investment in renewable energy has boomed over the past decade, but large-scale investment has been in gradual decline since the Renewable Energy Target was met in 2020, reducing the incentive for new generation (Figure 3). Prior to the expansion of the Capacity Investment Scheme in late 2023, state-based measures were only on track to deliver around 70 per cent renewables by 2030.[67] Investment slowed further over the past year due to higher project costs, complex permitting processes, a congested grid and intensifying global competition in the race to net zero.[68]

Meanwhile, we are missing significant opportunities for cheaper reductions in other sectors because we lack the economy-wide incentives that would come with broad-based emissions pricing. Australia also has failed to implement complementary policies that have been successful internationally, such as a fuel efficiency standard for light vehicles (the Federal Government is working to introduce a fuel efficiency standard that would apply from the start of 2025).

FIGURE 3

Rooftop solar is growing faster than large-scale renewables

Rolling 12-month average of new installed capacity (MW)



Large-scale renewable data are for financially committed generation projects. Solar PV data are for systems installed under the Commonwealth Government's Renewable Energy Target, with estimated data for recent months that adjusts for reporting delays.

Source: Clean Energy Council (2023) Renewable Projects Quarterly Report; Australian PV Institute (2024) https://pv-map.apvi.org.au/analyses • Created with Datawrapper

We can do more to reduce emissions of the powerful greenhouse gas methane at relatively low cost. In the energy sector, a significant share of methane emissions can be addressed with current technology at reasonable or no net cost, for example by using existing gas drainage systems to capture and use underground gas from coal mining, and wider use of leak detection and repair in oil and gas.[69]

Substantial low-cost methane emissions reduction is also available in agriculture, for example from feed supplements, selective breeding and reducing the time taken to get beef cattle to market.[70] In October 2022 Australia joined more than 120 countries working collectively to reduce global methane emissions across all sectors by at least 30 per cent below 2020 levels by 2030, but policy implementation lags this ambition.

More policy measures are in the pipeline

If policies announced but not yet fully developed are implemented, emissions are estimated to fall by 42 per cent by 2030, just missing the 43 per cent target (Figure 1 above).

These measures include expanding the Capacity Investment Scheme to support 9GW of clean dispatchable capacity (such as batteries) and 23GW of variable renewable-generation capacity. The expansion seeks to help achieve the Government's target of 82 per cent renewable generation by 2030. The chosen approach will provide a long-term revenue safety-net that decreases financial risks for investors, with government (and therefore taxpayers) bearing the risk. Government funding will also diminish incentives for energy-efficiency measures, compared with a system such as the current Renewable Energy Target that recovers costs through electricity prices.

Beyond these specific policies, in 2024 the Government will develop six sectoral decarbonisation plans across:

Australia has joined 117 other countries backing a pledge at the COP28 climate conference to triple global renewable-energy capacity and double the rate of energy-efficiency improvements to over four per cent annually by 2030. To enable this, participants commit to adopt ambitious policies on renewable energy and energy efficiency, recognising the importance of enablers including accelerated permitting, expansion of grid connections and supporting research, development and innovation.

The investment needed is large, but not unprecedented

Substantial additional investment will be needed. In the electricity sector alone, around $12 billion per year will be required under the most likely scenario.[71] The Clean Energy Finance Corporation has estimated it will take roughly $20 billion in annual investment to transition the energy sector and meet our 2030 target. The Australian Industry Energy Transitions Initiative has estimated it will also take around $20 billion a year to meet our 2050 target.[72] This is in the same range as historical major investments in Australia, such as the $23 billion invested annually in new LNG projects between 2009 and 2022.[73]

Far more would be needed for Australia to become a big clean-energy exporter. A scenario with 18Mt of green hydrogen and 58Mt of green iron exports annually by 2050 is estimated to require $42 billion per year in investment to fund industry-abatement technologies and transition the energy system.[74]

Another study indicates that $67 billion in annual investment would be needed (excluding investment in new electric vehicles) to transition Australia's energy system and export 28.5Mt of clean hydrogen by 2050.[75] Fully replacing today's energy exports with clean-energy exports could require in the order of

It is estimated that it will take roughly **$20 billion** in annual investment to transition the energy sector and meet **2030** and **2050** targets.

In the **electricity** sector alone, around **$12 billion** of **investment** per year will be required under the most likely scenario.

Fully replacing today's energy **exports** with **clean-energy** exports could require in the order of **$200 billion of** investment per year.

$200 billion[i] of investment per year.[76] This amounts to 7.5 per cent of current GDP, or close to one third of total annual investment across the public and private sectors.

Australia has delayed its response to the US Inflation Reduction Act

The Federal Government has delayed its response to the US Inflation Reduction Act due to concerns about a lack of skilled workers and slow environmental approvals.[77] The expanded use of taxpayer-funded industry grants or US-style production credits (where producers receive a per-unit tax credit for production of clean technology or its component parts) is still on the table. Regardless of the measures chosen, governments will need to take a more active role in guiding the transition in the absence of a broad-based emissions price.

While supportive policy will be necessary, subsidies come at a cost (Box 1).

i Investment costs are somewhat lower, at around $190 billion per year rather than $230 billion per year, if these energy exports are embedded in onshore manufacturing of clean iron and aluminium.

BOX 1

There are cheaper ways to cut emissions than large-scale subsidies

Using subsidies to cut emissions will cost the US Federal Budget about $US1 trillion in the years to 2031. The average abatement cost of just over $US60 per tonne under such an approach is lower than the social cost of carbon (that is, the cost of the damage caused by one extra tonne of carbon emissions). However, achieving the same abatement via emissions pricing would cost roughly one-fifth as much.[78] That is, the US could save $US800 billion through better policy alone, such as emissions pricing.

There can be complementarities between emissions pricing and subsidies, for example to accelerate research and development of low-carbon technologies. If used alone, however, subsidies are not cost effective as they need to be financed by raising taxes and can increase energy consumption by reducing prices.[79]

Emissions pricing, in addition to providing clear signals to investors, would also assist the transition by reducing demand for energy and encouraging consumers to use lower-emission goods, for example through improving energy efficiency. It would also improve the Government's fiscal balance and diversify revenue sources, the importance of which was highlighted in the federal 2023 Intergenerational Report.

The benefits of a carbon price in terms of economic efficiency have long been recognised, but greater reliance on emissions pricing has proven to be politically difficult including because of disproportionate effects on low-income earners.

Alternative emission reduction policies such as mandatory standards, subsidies and regulation can also have concentrated negative effects on low-income households,[80] so complementary policy to support vulnerable households is likely to be necessary under a broad range of policy tools. One path forward is to continue to strengthen and expand the safeguard mechanism, which currently covers around 28 per cent of Australian emissions, while working to build public understanding and support for the beneficial uses of revenue from emissions pricing.

The Federal Government is also expected to announce its clean-energy industry policy in this year's Budget. Industry support should focus on innovation and building on comparative advantages rather than shutting ourselves out of global value chains. For example, Australia may have a comparative advantage in processing battery minerals, which is best undertaken close to critical minerals mining. In the case of battery manufacturing, however, proximity to electrical-vehicle production and cheaper labour may be more important for sustained competitiveness.[81]

Where grants, production credits or other industry supports are used to accelerate the energy transition, governments should be clear on their objectives and transparent in evaluating outcomes. An overarching analytical and data-driven framework needs to be applied to determine how funding is allocated.

> **Regulatory certainty – including around approvals processes – is crucial to deliver the scale and pace of investment required.**

Priorities for 2024

This year, we need long-term policy signals to underpin investor certainty. Regulatory certainty – including around approvals processes – is crucial to deliver the scale and pace of investment required. Bipartisan support for key measures would give a huge boost to policy certainty and thus investment signals. While bipartisanship has proven difficult in Australian energy policy, pragmatism around enabling a broad range of technologies and market solutions would help. This requires evidence-based analysis of the best ways to balance energy affordability, security of supply and emissions reductions.

Decisions should be driven by the balance between emissions, affordability and reliability, rather than ruling out specific technologies. For example, highly flexible gas-fired peaking plants can play an important complementary role alongside batteries and pumped hydro even as their infrequent use limits emissions, but were ruled out of the Capacity Investment Scheme.

We should monitor international developments and consider removing the current ban on nuclear energy as part of a non-ideological, all-technologies approach to ensure Australia has access to the best sources of power. Nuclear energy is an emissions-free source of baseload power that has contributed to lower emissions in countries including France, the US and UK. It could become more viable in coming decades if the cost of small modular reactors falls with greater deployment globally, with potential to replace solar and wind generators as they reach the end of their lifetime. Currently, however, energy-market modelling consistently indicates that nuclear is not an economic decarbonisation option for Australia, as it is significantly more expensive than renewables with firming and would take much longer to develop given the lack of local expertise in Australia.[82]

Australia can potentially play a huge role to help its trading partners decarbonise through exports of clean energy and critical minerals. Coordination across federal and state governments will be important to maximise Australia's opportunities. This includes working with trading partners to understand their transition paths and the implications for demand for Australia's traditional and new energy exports. Greater clarity on the national approach to gas exports, for example, should be provided this year in the Future Gas Strategy.

Incentives will be needed to reduce demand when supply is tight, with an important role for digital technologies to enable automatic and efficient responses. Demand flexibility will become even more crucial if and when Australia ramps up clean-energy exports, as the manufacture of products such as green ammonia (for fertilisers, explosives and possibly shipping fuel) can increase the flexibility and reliability of the energy sector by shifting demand to times when electricity is more plentiful and allowing renewable exports to the grid when prices are high.[83]

Governments must act immediately to enable the development and deployment of the workforce skills needed to deliver clean energy. There are looming shortages in crucial trades such as electricians. CEDA's 2023 report *Powering the Transition* showed shortages in other key occupations, such as engineering, are already constraining clean-energy businesses.

We must ramp up training and education in key occupations, while ensuring that policy settings enable Australia to make the best use of existing skills. This requires updating and harmonising relevant occupational licences to reduce barriers to worker mobility as new technologies are rolled out. The new Skills in Demand visa needs to be implemented to enable fast, simple visa pathways to bring highly skilled clean-energy workers into Australia.

Massive investment is needed to enable timely and thorough consultation with affected communities and environmental experts, while reducing the considerable risk of delays from planning approvals for large-scale renewable and transmission projects. Engagement needs to occur early enough to enable plans and/or locations to change where substantive issues are uncovered, and needs to be done in a strategic and coordinated manner rather than project-by-project. There are opportunities to streamline planning, for example for onshore wind in some states, but there also must be value provided and/or compensation for affected communities alongside protection of valuable ecosystems.

The transformation of Australia's energy sector will be challenging. There must be action on several fronts this year to mobilise investment, deliver long-term policy signals, accelerate progress on deep energy storage, sharpen incentives for demand response and build skills and streamline planning processes, while bringing affected communities along on the journey to net zero.

References

1 Australian Government. (2023). *Working Future: The Australian Government's White Paper on Jobs and Opportunities*. https://treasury.gov.au/sites/default/files/2023-10/p2023-447996-working-future.pdf

2 Jobs and Skills Australia (2023). *Towards a National Jobs and Skills Roadmap. Annual Jobs and Skills Report 2023.* https://www.jobsandskills.gov.au/publications/towards-national-jobs-and-skills-roadmap#:~:text=This%20inaugural%20Jobs%20and%20Skills,the%20coming%20year%20and%20beyond.

3 Ibid.

4 Ibid.

5 CEDA. (2022). *Employment White Paper Submission. https://www.ceda.com.au/ResearchAndPolicies/Research/Workforce-Skills/Employment-white-paper-submission.*

6 Australian Government. (2023). *Working Future: The Australian Government's White Paper on Jobs and Opportunities.* https://treasury.gov.au/sites/default/files/2023-10/p2023-447996-working-future.pdf

7 Centre for Population. (2023). *National, state and territory population.* https://population.gov.au/data-and-forecasts/key-data-releases/national-state-and-territory-population-june-2023

8 Department of Employment and Workplace Relations. (2023). *Mutual recognition*. https://www.dewr.gov.au/skills-support-individuals/mutual-recognition

9 CEDA. (2022). *Employment White Paper Submission. https://www.ceda.com.au/ResearchAndPolicies/Research/Workforce-Skills/Employment-white-paper-submission.*

10 National Bureau of Economic Research. (2023). *Working Paper 31161. Generative AI at Work.* https://www.nber.org/papers/w31161

11 OECD. (2023). *OECD Employment Outlook 2023: Artificial intelligence and the Labour Market*. https://www.oecd-ilibrary.org/employment/oecd-employment-outlook-2023_08785bba-en

12 Ibid.

13 OECD. (2023). *OECD Economic Surveys: Australia 2023.* https://read.oecd-ilibrary.org/economics/oecd-economic-surveys-australia-2023_1794a7c9-en#page75

14 Bahar, E., Bradshaw, N., Deutscher, N. and Montaigne, M. (2022). *Children and the gender earnings gap*. https://treasury.gov.au/sites/default/files/2022-11/p2022-325290-children.pdf

15 Birch, E. and Preston, A. (2021). Women, COVID-19 and Superannuation. *Australian Journal of Labour Economics,* 24(2). Available at: https://research.curtin.edu.au/businesslaw/wp-content/uploads/sites/5/2021/10/AJLE-Vol-24-No-2-2021.pdf#page=73

16 Australian Government. (2023). *Working Future: The Australian Government's White Paper on Jobs and Opportunities*. https://treasury.gov.au/sites/default/files/2023-10/p2023-447996-working-future.pdf

17 Jobs and Skills Australia (2023). *Towards a National Jobs and Skills Roadmap. Annual Jobs and Skills Report 2023.* https://www.jobsandskills.gov.au/publications/towards-national-jobs-and-skills-roadmap#:~:text=This%20inaugural%20Jobs%20and%20Skills,the%20coming%20year%20and%20beyond.

18 Ibid.

19 Jobs and Skills Australia. (2023). *Clean Energy Capacity Study.* https://www.jobsandskills.gov.au/studies/clean-energy-capacity-study

20 Norton, A. (2020). *3 flaws in Job-Ready Graduates package will add to the turmoil in Australian higher education*. https://theconversation.com/3-flaws-in-job-ready-graduates-package-will-add-to-the-turmoil-in-australian-higher-education-147740

21 Clare, J. (2023). *Australian Universities Accord Interim Report and immediate actions.* https://ministers.education.gov.au/clare/australian-universities-accord-interim-report-and-immediate-actions

22 Department of Education. (2023). *Australian Universities Accord Interim Report. https://www.education.gov.au/australian-universities-accord/resources/accord-interim-report*

23 Industry, Innovation and Science Australia. (2023). *Barriers to collaboration and commercialisation.* https://www.industry.gov.au/sites/default/files/2023-11/barriers-to-collaboration-and-commercialisation-iisa.pdf

24 Department of Employment and Workplace Relations. (2023). *National Skills Agreement*. https://www.dewr.gov.au/skills-reform/national-skills-agreement

25 Ibid.

26 Jobs and Skills Australia (2023). *Towards a National Jobs and Skills Roadmap. Annual Jobs and Skills Report 2023.* https://www.jobsandskills.gov.au/publications/towards-national-jobs-and-skills-roadmap#:~:text=This%20inaugural%20Jobs%20and%20Skills,the%20coming%20year%20and%20beyond.

27 CEDA. (2024). *Making Better Use of Migrants' Skills.*

28 Australian Bureau of Statistics, "Working Arrangements, August 2023 | Australian Bureau of Statistics," ABS Website, December 13, 2023, https://www.abs.gov.au/statistics/labour/earnings-and-working-conditions/working-arrangements/latest-release.

29 Australian Bureau of Statistics (October 2017) Mode of Travel to Work, [Census TableBuilder], accessed 15 February 2023 https://tablebuilder.abs.gov.au/webapi/jsf/tableView/tableView.xhtml

30 Productivity Commission, "Working from Home Research Paper," Research paper (Canberra, 2021), https://www.pc.gov.au/research/completed/working-from-home/working-from-home.pdf.

31 "KPMG 2023 CEO Outlook - KPMG Global," KPMG, December 22, 2023, https://kpmg.com/xx/en/home/insights/2023/09/kpmg-global-ceo-outlook-survey.html.

32 Australian HR Institute, "Hybrid & Flexible Working, Practices in Australian Workplaces in 2023," October 2023, https://www.ahri.com.au/wp-content/uploads/AHRI-Research_Hybrid-Flexible-Working-Practices-in-Australian-Workplaces-in-2023.pdf.

33 Australian Institute of Company Directors and Roy Morgan, "Director Sentiment Index Survey 2nd Half 2023," Insights Report, Director Sentiment Index Survey, December 2023, https://www.aicd.com.au/content/dam/aicd/pdf/news-media/research/2023/roy-morgan-aicd-dsi-wave-2-2023-insights-report.pdf.

34 James Thomson, "Why the Work from Home Debate Is Entering a New Phase," *Australian Financial Review*, December 18, 2023, sec. chanticleer, https://www.afr.com/chanticleer/why-the-work-from-home-debate-is-entering-a-new-phase-20231219-p5esej.

35 Australian Institute of Company Directors and Roy Morgan, "Director Sentiment Index Survey 2nd Half 2023."

36 Danielle Wood and Alex Robson, "Productivity: Be Alert but Not Alarmed about Post-COVID Slump," *Australian Financial Review*, December 6, 2023, https://www.afr.com/policy/economy/be-alert-but-not-alarmed-about-post-covid-productivity-slump-20231129-p5enlv.

37 Jacqui Dwyer, "A Matter of Diversity," Australia, https://www.rba.gov.au/speeches/2022/sp-so-2022-09-28.html. D, Jacqui.

38 Melissa Wilson et al., "Dynamic Capabilities: How Australian Firms Can Survive and Thrive in Uncertain Times" (Committee for Economic Development of Australia, June 2023), https://cedakenticomedia.blob.core.windows.net/cedamediacontainer/kentico/media/attachments/ceda-dynamic-capabilities-report.pdf.

39 Department of Social Services; Melbourne Institute of Applied Economic and Social Research, 2023, "The Household, Income and Labour Dynamics in Australia (HILDA) Survey, GENERAL RELEASE 22 (Waves 1-22)", doi:10.26193/R4IN30, ADA Dataverse, V6

40 Commonwealth of Australia, "Working Future, The Australian Government's White Paper on Jobs and Opportunities," White Paper (Canberra, Australia: The Treasury, Seotember 2023), https://treasury.gov.au/sites/default/files/2023-10/p2023-447996-working-future.pdf., Page 24.

41 Melanie S. Brucks and Jonathan Levav, "Virtual Communication Curbs Creative Idea Generation," *Nature* 605, no. 7908 (May 1, 2022): 108–12, https://doi.org/10.1038/s41586-022-04643-y.

42 David Atkin, M. Keith Chen, and Anton Popov, "The Returns to Face-to-Face Interactions: Knowledge Spillovers in Silicon Valley," NBER Working Paper Series, no. w30147 (Cambridge, Mass: National Bureau of Economic Research, 2022).

43 Edward Glaeser, "Global Matters: Housing, Human Behaviour and Rethinking Cities with Edward Glaeser | CEDA," https://www.youtube.com/watch?v=sObj4cht2jw.

44 Wilson et al., "Dynamic Capabilities: How Australian Firms Can Survive and Thrive in Uncertain Times."

45 Natalia Emanuel, Emma Harrington, and Amanda Pallais, "The Power of Proximity to Coworkers: Training for Tomorrow or Productivity Today?," 10040.

46 Elizabeth Linos, "Does Teleworking Work for Organizations?" (Boston, MA, Harvard university, 2015), https://www.egos.org/jart/prj3/egos/data/uploads/Awards/BPA-2015_st-56_Linos.pdf.

47 Productivity Commission, "Mental Health," inquiry report, November 16, 2020, https://www.pc.gov.au/inquiries/completed/mentalhealth/report/mental-health.pdf.

48 Safe Work Australia, "Australian Workers' Compensation Statistics 2019-20" (Canberra, Australia), accessed January 23, 2024, https://www.safeworkaustralia.gov.au/sites/default/files/2021-11/Final%20Australian%20Workers%20%20Compensation%20Statistics%202019-20.pdf.

49 Productivity Commission, "Working from Home Research Paper."

50 Ibid.

51 World Health Organisation, "Guidelines on Mental Health at Work," n.d., https://www.who.int/publications/i/item/9789240053052.

52 Nicholas Bloom, Ruobing Han, and James Liang, "How Hybrid Working from Home Works Out," SSRN Scholarly Paper (Rochester, NY, July 1, 2022), https://papers.ssrn.com/abstract=4173636.

53 Jessica Howington, "Exploring the Impact of Remote Work on Mental Health and the Workplace," FlexJobs Job Search Tips and Blog, June 16, 2023, https://www.flexjobs.com/blog/post/exploring-the-impact-of-remote-work-on-mental-health-and-the-workplace/.

54 Opinion contributor Nick Bloom, "Does Working from Home Damage Productivity? Just Look at the Data.," Text, *The Hill* (blog), September 29, 2023, https://thehill.com/opinion/technology/4228100-does-working-from-home-damage-productivity-just-look-at-the-data/.

55 John Quiggin, "Have We Just Stumbled on the Biggest Productivity Increase of the Century?," *The Conversation*, September 3, 2020, http://theconversation.com/have-we-just-stumbled-on-the-biggest-productivity-increase-of-the-century-145104.

56 Mark (Shuai) Ma and Yuye Ding, "Return-to-Office Mandates," SSRN Scholarly Paper (Rochester, NY, December 25, 2023), https://papers.ssrn.com/abstract=4675401.

57 Australian HR Institute, "Hybrid & Flexible Working, Practices in Australian Workplaces in 2023."

58 Wilson et al., "Dynamic Capabilities: How Australian Firms Can Survive and Thrive in Uncertain Times."

59 "Workplace Mental Health and Wellbeing," Black Dog Institute | Better Mental Health, accessed January 24, 2024, https://www.blackdoginstitute.org.au/education-services/workplaces/.

60 Australian HR Institute, "Hybrid & Flexible Working, Practices in Australian Workplaces in 2023."

61 Australian Energy Market Operator, "2023 Electricity Statement of Opportunities," 2023, https://aemo.com.au/-/media/files/electricity/nem/planning_and_forecasting/nem_esoo/2023/2023-electricity-statement-of-opportunities.pdf.

62 Australian Energy Market Operator.

63 Australian Energy Market Operator, "2023 Wholesale Electricity Market Electricity Statement of Opportunities," 2023, https://aemo.com.au/-/media/files/electricity/wem/planning_and_forecasting/esoo/2023/2023-wholesale-electricity-market-electricity-statement-of-opportunities-wem-esoo.pdf.

64 ACCC, "Gas Inquiry 2017-2030: Interim Update on East Coast Gas Market December 2023," 2023, https://www.accc.gov.au/system/files/Gas%20Inquiry%202017-2030%20-%20December%202023_0.pdf.

65 Australian Energy Market Operator, "Gas Statement of Opportunities," 2023, https://aemo.com.au/-/media/files/gas/national_planning_and_forecasting/gsoo/2023/2023-gas-statement-of-opportunities.pdf.

66 Australian Energy Market Operator, “2022 Western Australia Gas Statement of Opportunities,” 2022, https://www.aemo.com.au/-/media/files/gas/national_planning_and_forecasting/wa_gsoo/2022/2022-wa-gas-statement-of-opportunities.pdf.

67 Tim Nelson, Tahlia Nolan, and Joel Gilmore, “Effective Policy to Achieve the Australian Government’s Commitment to 82% Renewable Energy by 2030,” 2023, https://doi.org/10.13140/RG.2.2.34564.09609.

68 Clean Energy Council, “New Renewables Figures Underline Need for Federal Government Measures,” Media Release, 2023, https://www.cleanenergycouncil.org.au/news/new-renewables-figures-underline-need-for-federal-government-measures.

69 International Energy Agency, “Methane Emissions Remained Stubbornly High in 2022 Even as Soaring Energy Prices Made Actions to Reduce Them Cheaper than Ever” (Paris, 2023), https://www.iea.org/news/methane-emissions-remained-stubbornly-high-in-2022-even-as-soaring-energy-prices-made-actions-to-reduce-them-cheaper-than-ever.

70 Farmers for Climate Action, “How Can Australia’s Agriculture Sector Realise Opportunity in a Low Emissions Future?” (Report prepared by EY, 2021), https://farmersforclimateaction.org.au/wp-content/uploads/2021/09/FCA-EY-FINAL-Report-Low-emissions-future-for-Agriculture.pdf.

71 Australian Energy Market Operator, “Draft 2024 Integrated System Plan,” 2024, https://aemo.com.au/-/media/files/stakeholder_consultation/consultations/nem-consultations/2023/draft-2024-isp-consultation/draft-2024-isp.pdf?la=en; Australian Energy Market Operator, “2022 Integrated System Plan,” 2022, https://aemo.com.au/-/media/files/major-publications/isp/2022/2022-documents/2022-integrated-system-plan-isp.pdf?la=en.

72 Clean Energy Finance Corporation, “Annual Report 2022-23: New Capital, New Ambition,” 2023, https://www.cefc.com.au/annual-report-2023/; Australian Industry Energy Transitions Initiative, “Pathways to Industrial Decarbonisation: Positioning Australian Industry to Prosper in a Net Zero Global Economy,” Phase 3 report, 2023, https://energytransitionsinitiative.org/wp-content/uploads/2023/08/Pathways-to-Industrial-Decarbonisation-report-Updated-August-2023-Australian-Industry-ETI.pdf.

73 Department of Industry, Science, Energy and Resources, “Global Resources Strategy Commodity Report: Liquefied Natural Gas,” 2022, https://www.industry.gov.au/publications/global-resources-strategy-commodity-report-liquefied-natural-gas.

74 Australian Industry Energy Transitions Initiative, “Pathways to Industrial Decarbonisation: Positioning Australian Industry to Prosper in a Net Zero Global Economy.”

75 BloombergNEF, “Report Shows Pathway and Cost for Australia to Meet Climate Goals and Become Major Hydrogen Exporter,” 2023, https://about.bnef.com/blog/report-shows-pathway-and-cost-for-australia-to-meet-climate-goals-and-become-major-hydrogen-exporter/.

76 Net Zero Australia, “Final Modelling Results” (The University of Melbourne; The University of Queensland; Princeton University; Nous Group, 2023), https://www.netzeroaustralia.net.au/wp-content/uploads/2023/04/Net-Zero-Australia-final-results-full-results-pack-19-April-23.pdf.

77 Jacob Greber, “IRA ‘Response’ Delayed Due to Skills Shortage, Approval Red Tape,” *Australian Financial Review*, November 2, 2023, https://www.afr.com/politics/federal/ira-response-delayed-due-to-skills-shortage-approval-red-tape-20231102-p5eh58.

78 John Bistline, Neil Mehrotra, and Catherine Wolfram, “Economic Implications of the Climate Provisions of the Inflation Reduction Act,” Working Paper 31267 (National Bureau of Economic Research, 2023), https://www.nber.org/system/files/working_papers/w31267/w31267.pdf; The higher cost of reducing emissions via subsidies has also been found in European research: Danish Economic Council of Environmental Economics, “Economy and Environment, 2020: Summary and Recommendations” (Copenhagen, 2021), https://dors.dk/files/media/rapporter/2020/m20/endelig_rapport/m20_summary_and_recommendations.pdf; Klaus Gugler, Adhurim Haxhimusa, and Mario Liebensteiner, “Effectiveness of Climate Policies: Carbon Pricing vs. Subsidizing Renewables,” *Journal of Environmental Economics and Management* 106 (March 1, 2021): 102405, https://doi.org/10.1016/j.jeem.2020.102405.

79 Jean Chateau, Florence Jaumotte, and Gregor Schwerhoff, “Climate Policy Options: A Comparison of Economic Performance” (International Monetary Fund, 2022), https://www.imf.org/-/media/Files/Publications/WP/2022/English/wpiea2022242-print-pdf.ashx.

80 Georg Zachmann, Gustav Fredriksson, and Gregory Claeys, “The Distributional Effects of Climate Policies,” Bruegel Blueprint Series (Brussels, 2018), https://www.bruegel.org/sites/default/files/wp-content/uploads/2018/11/Bruegel_Blueprint_28_final1.pdf.

81 Productivity Commission, “Trade and Assistance Review 2021-22,” Annual report series (Canberra, 2023).

82 P Graham, J Hayward, and J Foster, “GenCost 2023-24: Consultation Draft” (CSIRO, 2023), https://www.csiro.au/-/media/Energy/GenCost/GenCost2023-24Consultdraft_20231219-FINAL.pdf; Net Zero Australia, “How to Make Net Zero Happen: Mobilisation Report.”

83 Andrew Fletcher et al., “Queensland Green Ammonia Value Chain: Decarbonising Hard-to-Abate Sectors and the NEM,” Working Paper Series 2023-16 (Griffith University Centre for Applied Energy Economics & Policy Research:, 2023), https://www.griffith.edu.au/__data/assets/pdf_file/0036/1875168/No.2023-16-QLD-Green-Ammonia-Value-Chain-Information-Sheets.pdf.

National

Level 3
271 Spring Street
Melbourne 3000 Australia
GPO Box 2117
Melbourne VIC 3001
Telephone +61 1800 161 236
Email info@ceda.com.au

Queensland

Level 6
100 Creek Street
Brisbane Qld 4000
GPO Box 2900
Brisbane QLD 4001
Telephone +61 1800 161 236
Email info@ceda.com.au

Victoria and Tasmania

Level 3
271 Spring Street
Melbourne 3000 Australia
GPO Box 2117
Melbourne VIC 3001
Telephone +61 1800 161 236
Email info@ceda.com.au

New South Wales and the ACT

Suite 3219
Level 32, 200 George Street
Sydney NSW 2000
GPO Box 2100
Sydney NSW 2001
Telephone +61 1800 161 236
Email info@ceda.com.au

South Australia and the Northern Territory

Level 2
33 King William Street
Adelaide SA 5000
Telephone +61 1800 161 236
Email info@ceda.com.au

Western Australia

Level 4
220 St Georges Terrace
Perth WA 6000
PO Box 5631
St Georges Tce
Perth WA 6831
Telephone +61 1800 161 236
Email info@ceda.com.au